



**S6J3310 Series**  
**S6J3320 Series**  
**S6J3330 Series**  
**S6J3340 Series**

## 32-bit Microcontroller Traveo™ Family

The Traveo family expands the company's automotive applications, scalability and high performance into one line-up and at the same time adds new features to fulfill the latest requirements of the automotive industry. Based on the powerful Arm® Cortex®- R5F core in single operations, it offers state-of-the-art real time performance, safety and security features. The family supports the latest in-car networks and offers high performance graphics engines optimized for a minimum memory footprint and embeds dedicated features to increase data security in the car.

S6J3310/20/30/40 is a microcontroller series for instrument clusters with small thin-film transistor (TFT) displays.

### Features

#### ■ System

- 32-bit Arm Cortex-R5F CPU core at up to 240 MHz
- General purpose I/O port: up to 148
- 12-bit A/D converter: up to 48 channels
- External interrupt: up to 24 channels
- Base timer: up to 32 channels
- 32-bit reload timer: up to 6 channels
- 32-bit free-run timer: 8 channels
- Input capture unit: 12 channels
- Output compare unit: 12 channels
- Stepper motor controller (SMC): 6 Units
- Built-in CR oscillator
- Real-time clock
- DMA controller: 16 channels
- JTAG debug interface

#### ■ Graphics and Display (optional)

- 2D graphic engine
- RGB888
- LCD : up to 4 COM x 32 SEG

#### ■ Communication

- CAN-FD: up to 6 channels
- Multi-function serial interface: up to 12 channels, selectable protocol: UART, CSIO, LIN and I<sup>2</sup>C
- Ethernet AVB MAC (optional)
- MediaLB (optional)
- Automotive Remote Handler for APIX® (optional)

#### ■ Memory

- HyperBus™ Memory interface
- DDR High Speed SPI
- External BUS interface

#### ■ Multimedia (optional)

- I2S input/output: 2 channels
- PCM to PWM output unit
- Sound mixer: 1 unit x 10 inputs
- Stereo audio DAC

#### ■ Security and Safety

- Secure Hardware Extension – SHE
- Safety features, such as MPU, TPU, ECC and others
- CRC generator: 1 channel
- Watchdog timer with window function
- Low voltage detector
- Clock supervisor for all source clocks

### Applications

#### ■ Instrument cluster

## Table of Contents

|                                            |           |                                                      |            |
|--------------------------------------------|-----------|------------------------------------------------------|------------|
| <b>1. Overview.....</b>                    | <b>3</b>  | 6.2 Remark .....                                     | 58         |
| 1.1 Overview .....                         | 3         | <b>7. Port Configuration.....</b>                    | <b>59</b>  |
| 1.2 Document Definition .....              | 3         | 7.1 Resource Input Configuration Module .....        | 59         |
| <b>2. Function List .....</b>              | <b>4</b>  | 7.2 Port Output Function Configuration .....         | 148        |
| 2.1 Function List .....                    | 4         | <b>8. Precautions and Handling Devices.....</b>      | <b>158</b> |
| 2.2 Optional Function .....                | 6         | 8.1 Handling Precautions.....                        | 158        |
| <b>3. Product Description.....</b>         | <b>9</b>  | 8.2 Handling Devices.....                            | 161        |
| 3.1 Overview .....                         | 9         | <b>9. Electric Characteristics.....</b>              | <b>163</b> |
| 3.2 Product Description .....              | 9         | 9.1 Electrical Characteristics.....                  | 163        |
| <b>4. Package and Pin Assignment .....</b> | <b>15</b> | <b>10. Acronyms .....</b>                            | <b>261</b> |
| 4.1 Pin Assignment .....                   | 15        | <b>11. Ordering Information.....</b>                 | <b>262</b> |
| 4.2 Package Dimensions.....                | 27        | <b>12. Errata .....</b>                              | <b>263</b> |
| <b>5. IO Circuit Type .....</b>            | <b>31</b> | <b>13. Appendix .....</b>                            | <b>265</b> |
| 5.1 I/O Circuit Type .....                 | 31        | 13.1 Application 1: JTAG Tool Connection .....       | 265        |
| 5.2 Note.....                              | 36        | <b>14. Major Changes.....</b>                        | <b>266</b> |
| <b>6. Port Description .....</b>           | <b>37</b> | <b>Document History .....</b>                        | <b>323</b> |
| 6.1 Port Description List .....            | 37        | <b>Sales, Solutions, and Legal Information .....</b> | <b>325</b> |

## 1. Overview

### 1.1 Overview

S6J3310/20/30/40 is a microcontroller series which is to be applied to automotive systems representative of a graphical cluster control unit on a dashboard.

### 1.2 Document Definition

The related documents of S6J3310/20/30/40 are the followings.

**Table 1-1: Document Definition**

| Document Type                    | Definition                                                                                                                                                                     | Primary User                       | Document Code                                                                                        |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------|
| S6J3310/20/30/40 Datasheet       | This document.<br><br>The function and its characteristics are specified quantitatively.                                                                                       | Investigator and hardware engineer | 002-10635                                                                                            |
| S6J3300 Hardware Manual          | S6J3300 Series 32-bit Microcontroller Traveo™ Family Hardware Manual<br><br>The function and its operation of S6J3300 series are described.                                    | Software engineer                  | 002-10185                                                                                            |
| Traveo™ Platform Hardware Manual | 32-Bit Microcontroller Traveo™ Family S6J33xx, S6J34xx, S6J35xx Series Hardware Manual Platform Part<br><br>The function and its operation of CPU core platform are described. | Software engineer                  | 002-07884                                                                                            |
| Application Note                 | The reference software, sample application, the reference board design and so on are explained.                                                                                | Software and hardware engineer     | 002-03898<br>002-04455<br>002-04446<br>002-09716<br>002-04452<br>002-04096<br>002-12061<br>002-02495 |

**Notes:**

- Refer all documents for the system development.
- "Primary user" is a most likely engineer for whom the document is the most useful.
- The description of the datasheet and the S6J3300 Hardware Manual should precede the duplicated description of Traveo™ Platform Hardware Manual.
- Traveo™ Platform Hardware Manual is expected to be used as dictionary of platform specification.

## 2. Function List

### 2.1 Function List

The table shows the functions which are implemented in S6J3310/20/30/40 series.

**Table 2-1: Function List**

| Function                                       | S6J3310                                                             | S6J3320 | S6J3330 | S6J3340 | Remarks               |
|------------------------------------------------|---------------------------------------------------------------------|---------|---------|---------|-----------------------|
| CPU core                                       | Arm Cortex R5F                                                      |         |         |         |                       |
| FPU                                            | Available                                                           |         |         |         |                       |
| PPU                                            | Available                                                           |         |         |         |                       |
| MPU                                            | Available                                                           |         |         |         |                       |
| TPU                                            | Available                                                           |         |         |         |                       |
| Endian                                         | Little endian                                                       |         |         |         |                       |
| Core clock frequency                           | 240 MHz                                                             |         |         |         |                       |
| HPM bus frequency                              | 200 MHz                                                             |         |         |         |                       |
| LLPM bus frequency                             | 240 MHz                                                             |         |         |         |                       |
| Resource clock frequency                       | 80 MHz (Max)                                                        |         |         |         |                       |
| Embedded CR oscillation                        | Slow clock: 100 kHz,<br>Fast clock: 4 MHz<br>(Center frequency)     |         |         |         | See 9.1.4.1           |
| PLL                                            | PLL0, 1, 2, 3                                                       |         |         |         |                       |
| SSCG PLL                                       | SSCG0, 1, 2, 3                                                      |         |         |         |                       |
| Clock supervisor                               | Available                                                           |         |         |         |                       |
| DMA                                            | 16 ch                                                               |         |         |         |                       |
| Boot-ROM                                       | 16 Kbyte                                                            |         |         |         |                       |
| JTAG                                           | Available                                                           |         |         |         |                       |
| Data cache                                     | 16 Kbyte                                                            |         |         |         |                       |
| Instruction cache                              | 16 Kbyte                                                            |         |         |         |                       |
| Program FLASH                                  | Option                                                              |         |         |         | See 2.2.1             |
| Work FLASH                                     | 112 Kbyte                                                           |         |         |         |                       |
| TCRAM                                          | 128 Kbyte                                                           |         |         |         |                       |
| System SRAM                                    | 384 Kbyte                                                           |         |         |         |                       |
| Backup RAM                                     | 32 Kbyte                                                            |         |         |         |                       |
| Security (SHE)                                 | Option                                                              |         |         |         |                       |
| Low latency interrupt                          | Available                                                           |         |         |         |                       |
| Power domain                                   | 5 domains                                                           |         |         |         |                       |
| External power supply                          | 5 V (VCC5, VCC53),<br>3 V (VCC3, VCC53),<br>1.2 V (VCC12)           |         |         |         |                       |
| Embedded LDO power supply for 5.0 V            | Available                                                           |         |         |         |                       |
| Low voltage detection of external power supply | Available                                                           |         |         |         |                       |
| Low voltage detection of internal LDO output   | Available                                                           |         |         |         |                       |
| Hardware watchdog timer                        | Available                                                           |         |         |         |                       |
| Software watchdog timer                        | Available                                                           |         |         |         |                       |
| Package                                        | Option                                                              |         |         |         | See 2.2.1             |
| AUTOSAR                                        | AUTOSAR 4.0.3                                                       |         |         |         |                       |
| General Purpose I/O                            | Option                                                              |         |         |         | See 2.2.3             |
| Up/down counter                                | 2 ch                                                                |         |         |         |                       |
| I/O timer                                      | (FRT 5 ch x ICU 6 ch x OCU 6 ch) + (FRT 3 ch x ICU 6 ch x OCU 6 ch) |         |         |         |                       |
| 32bit Reload timer                             | 6 ch                                                                |         |         |         |                       |
| Real time clock                                | Available                                                           |         |         |         | Automatic calibration |
| Sound generator                                | 5 ch                                                                |         |         |         |                       |
| Sound waveform generator                       | 1 unit x 5 outputs                                                  |         | No      |         | See 2.2.1             |
| Sound mixer                                    | 1 unit x 10 inputs                                                  |         | No      |         | See 2.2.1             |

| Function                                  | S6J3310                                                                     | S6J3320 | S6J3330 | S6J3340 | Remarks                                                        |
|-------------------------------------------|-----------------------------------------------------------------------------|---------|---------|---------|----------------------------------------------------------------|
| Stereo audio DAC                          | 1 unit (L and R)                                                            |         | No      |         | See <a href="#">2.2.1</a>                                      |
| PCM-PWM                                   | 1 unit (L and R)                                                            |         | No      |         | See <a href="#">2.2.1</a>                                      |
| Base timer                                | 16 units (32 ch)                                                            |         |         |         |                                                                |
| Stepping motor controller (SMC)           | For 6 gauges                                                                |         |         |         |                                                                |
| 12bit-A/D converter                       | 2 unit - 48 input ports (Max)                                               |         |         |         | See <a href="#">2.2.3</a>                                      |
| CRC                                       | 4 units                                                                     |         |         |         |                                                                |
| Programmable CRC                          | 1 unit                                                                      |         |         |         |                                                                |
| Source clock timer                        | 4 ch                                                                        |         |         |         |                                                                |
| NMI                                       | Available                                                                   |         |         |         |                                                                |
| External interrupt                        | 24 ch                                                                       |         |         |         |                                                                |
| Internal interrupt                        | 512 vectors                                                                 |         |         |         |                                                                |
| I2S                                       | 2 ch                                                                        |         | 1 ch    |         | One only supports an output as a function of the sound system. |
| DDR HSSPI                                 | 1 ch                                                                        |         |         |         | A type of Quad SPI                                             |
| Hyper BUS                                 | 1 ch                                                                        |         |         |         | See the AC specification on <a href="#">9.1.4.17</a> .         |
| Multi-function serial interface           | 12 ch                                                                       |         |         |         |                                                                |
| CAN-FD                                    | 6 ch                                                                        |         |         |         |                                                                |
| CAN-FD RAM (ECC supported)                | 16 KB/ch<br>It equivalents to 128 message buffer per channel of MCAN module |         |         |         |                                                                |
| Ethernet AVB                              | 1 unit                                                                      |         |         | No      | See <a href="#">2.2.1</a>                                      |
| Media-LB (MOST50)                         | 1 unit                                                                      |         |         | No      | See <a href="#">2.2.1</a>                                      |
| LCD controller                            | 4 COM x 32 SEG (Max)                                                        |         |         |         | See <a href="#">2.2.3</a>                                      |
| Indicator PWM                             | 1 ch                                                                        |         |         |         |                                                                |
| MPU for AHB                               | 1 unit                                                                      |         |         |         |                                                                |
| MPU for AXI                               | 1 unit                                                                      |         |         |         |                                                                |
| Graphic engine clock                      | 80 MHz (Max)                                                                |         |         |         |                                                                |
| Graphic AXI clock                         | 80 MHz (Max)                                                                |         |         |         |                                                                |
| Display clock                             | 25 MHz                                                                      |         |         |         |                                                                |
| Display clock source                      | Graphic display controller clock or external clock                          |         |         |         |                                                                |
| Target resolution                         | WQVGA 480 x 272                                                             |         |         |         |                                                                |
| Target frame rate                         | 60 fps                                                                      |         |         |         |                                                                |
| Number of display outputs                 | 1 output                                                                    |         |         |         |                                                                |
| TTL output (RGB888)                       | Option                                                                      |         |         |         | See <a href="#">2.2.1</a>                                      |
| 2D Graphic engine                         | 1 unit                                                                      |         |         |         |                                                                |
| 2D Driver API                             | CYPRESS proprietary                                                         |         |         |         |                                                                |
| External BUS                              | 1 ch                                                                        |         |         |         |                                                                |
| APIX® for ARH (Automotive Remote Handler) | 1 unit (2 ch)                                                               | No      |         |         | See <a href="#">2.2.1</a>                                      |

**Notes:**

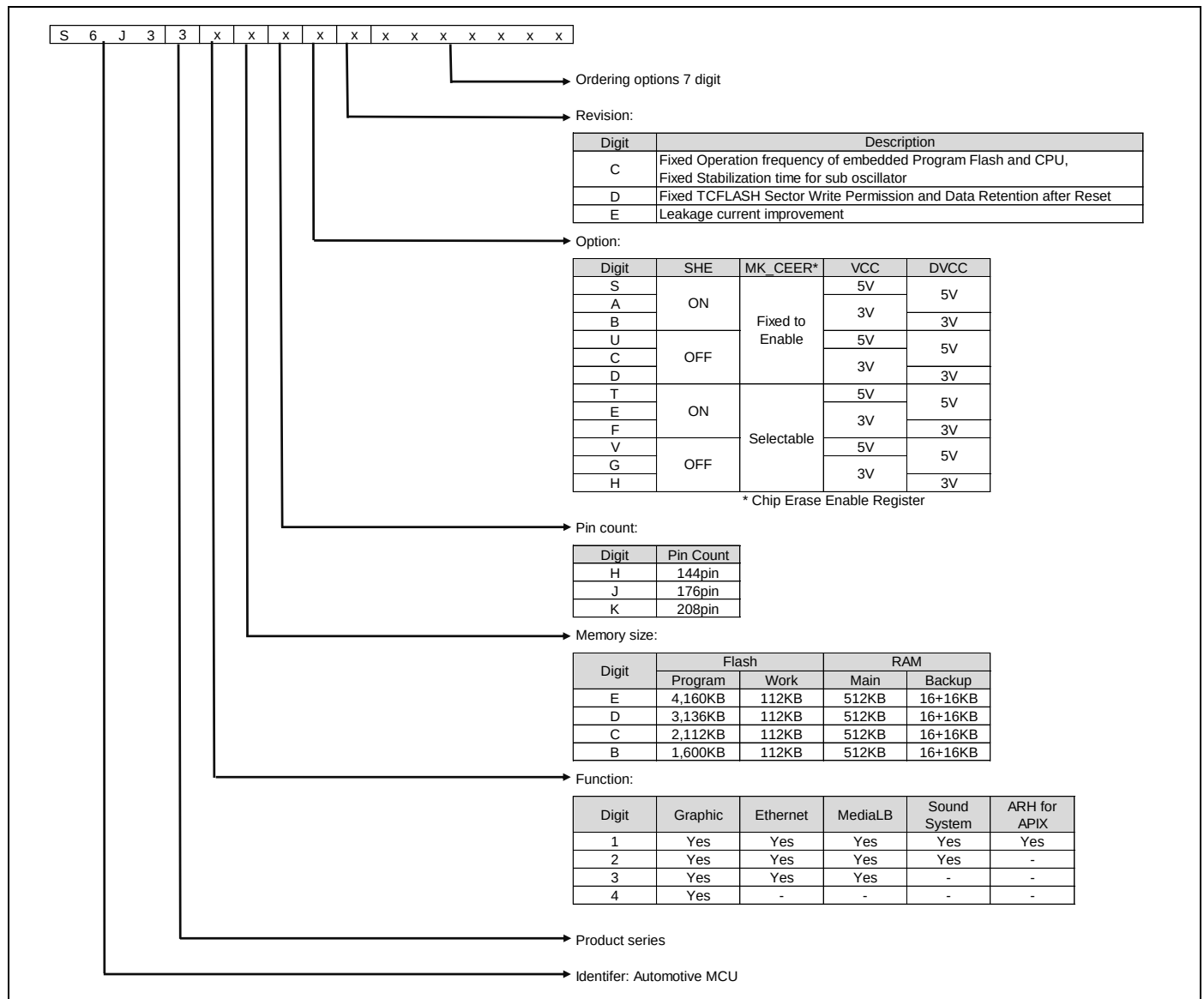
- The options are described in [2.2](#).

## 2.2 Optional Function

### 2.2.1 Basic Option

The figure shows the optional function and the part number relations of the series.

**Figure 2-1: Option and Part Number for S6J3310/20/30/40 Series**



#### Notes:

- This table only shows the relations between the optional function and the part numbers. That is, all products are not necessarily available for orders. See 11, and confirm actual availabilities of products.
- The sound system is composed of the sound waveform generator, the sound mixer, the audio DAC, PCM-PWM, and I2S0.

### 2.2.2 ID

ID is specified for each function digit and revision which is defined at [Figure 2-1](#).

| Function Digit | Revision | Chip ID    | JTAG ID    |
|----------------|----------|------------|------------|
| S,U,T,V        | C        | 0x10122100 | 0x1000B5CF |
|                | D, E     | 0x10122200 |            |
| A,C,E,G        | C        | 0x10128100 |            |
|                | D, E     | 0x10128200 |            |
| B,D,F,H        | C        | 0x10120100 |            |
|                | D, E     | 0x10120200 |            |

### 2.2.3 Restriction

Some functions have restrictions which depend on package pin counts.

**Table 2-2: Pin Restriction**

| Function                      | TEQFP176                                                                                     | TEQFP144                                                                                                                                                                                   |
|-------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Analog input port (12bit-ADC) | -                                                                                            | AN4~7, AN10~11,<br>AN14~15,<br>AN25~26, AN28~30,                                                                                                                                           |
| SEG port of LCD controller    | -                                                                                            | SEG0~3<br>SEG5~8                                                                                                                                                                           |
| General Purpose I/O           | P4_00 ~ P4_31                                                                                | P4_00 ~ P4_31<br>P3_00 ~ P3_31                                                                                                                                                             |
| CAN                           | RX0_2, TX0_2<br>RX1_0, TX1_0<br>RX1_1, TX1_1<br>RX2_0, TX2_0<br>RX2_1, TX2_1<br>RX3_2, TX3_2 | RX0_1, TX0_1<br>RX0_2, TX0_2<br>RX1_0, TX1_0<br>RX1_1, TX1_1<br>RX2_0, TX2_0<br>RX2_1, TX2_1<br>RX3_1, TX3_1<br>RX3_2, TX3_2<br>RX5_1, TX5_1<br>RX6_1, TX6_1                               |
| BaseTimer                     | -                                                                                            | PPG4/5/6/7/8/9_TOUT0_1<br>PPG4/5/6/7/8/9_TOUT2_1<br>PPG10/11/12/13/15_TOUT0_1<br>PPG10/11/12/13/14/15_TOUT2_1<br>PPG0/1/2/3/4/5_TIN1_1<br>PPG6/7/8/9/10/11_TIN1_1<br>PPG12/13/14/15_TIN1_1 |
| ExtBus                        | -                                                                                            | MDQM1<br>MAD15~21<br>MDATA8~15                                                                                                                                                             |

| Function           | TEQFP176                                                                                                                                                                                                                                                                                                                                       | TEQFP144                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| External Interrupt | EINT1_4, EINT1_5<br>EINT2_1, EINT2_2<br>EINT3_2, EINT4_2<br>EINT5_4, EINT5_5<br>EINT6_4, EINT7_1<br>EINT7_4, EINT8_4<br>EINT8_5, EINT9_1<br>EINT10_1, EINT10_4<br>EINT10_5, EINT13_2<br>EINT13_3, EINT14_2<br>EINT14_3, EINT15_3<br>EINT16_1, EINT16_3<br>EINT16_4, EINT19_4<br>EINT20_3, EINT21_3<br>EINT22_1, EINT22_3<br>EINT23_3, EINT23_4 | EINT0_4, EINT1_1<br>EINT1_4, EINT1_5<br>EINT2_1, EINT2_2<br>EINT2_4, EINT3_1<br>EINT3_2, EINT3_4<br>EINT4_2, EINT4_4<br>EINT5_4, EINT5_5<br>EINT6_1, EINT6_4<br>EINT7_1, EINT7_4<br>EINT8_1, EINT8_4<br>EINT8_5, EINT9_1<br>EINT9_2, EINT10_1<br>EINT10_2, EINT10_4<br>EINT10_5, EINT11_2<br>EINT11_5, EINT12_1<br>EINT12_2, EINT12_5<br>EINT13_2, EINT13_3<br>EINT13_5, EINT14_1<br>EINT14_2, EINT14_3<br>EINT14_5, EINT15_2<br>EINT15_3, EINT16_1<br>EINT16_2, EINT16_3<br>EINT16_4, EINT16_5<br>EINT17_1, EINT17_3<br>EINT17_5, EINT18_1<br>EINT18_3, EINT18_5<br>EINT19_1, EINT19_3<br>EINT19_4, EINT20_1<br>EINT20_2, EINT20_3<br>EINT21_1, EINT21_3<br>EINT22_1, EINT22_3<br>EINT23_3, EINT23_4 |

**Notes:**

- See multiplexed functions on pin assignment sheet.
- The optional restriction will be added without notification.



### 3. Product Description

#### 3.1 Overview

This chapter explains the product features of S6J3310/20/30/40 series. The description of this chapter should precede the duplicated description on *Traveo™ Platform Hardware Manual*.

#### 3.2 Product Description

The table shows features.

**Table 3-1: Product Features**

| Feature                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Technology              | 40-nm CMOS technology with embedded FLASH<br>Fully automotive qualified according to ISO/TS 16949 and AEC-Q100<br>Developed according to ISO26262, safety target ASIL-B                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Functional Safety       | The product series has some functional safety features suited for ASIL-B application.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Peripherals             | See function list.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Power Domain (PD)       | See the <i>Traveo™ Platform Hardware Manual</i> and chapter STATE TRANSITION in detail.<br>The product series supports the power off control of PD1, PD2 (including PD3 and 5), PD4_0, PD4_1 and PD6.<br>The power domain resets of PD3 and PD5 included in PD2 are not supported in the product series, and "0" is always read from the reset factor flags of them.<br>This series doesn't support partial wakeup for PD6.                                                                                                                                                                     |
| Debug and Trace         | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br><ul style="list-style-type: none"> <li>- Standard 5-pin JTAG interface</li> <li>- 4 kB Embedded Trace Buffer</li> </ul> 4-bit trace support for TEQFP package.                                                                                                                                                                                                                                                                                                                                                                    |
| System Control          | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Main and sub oscillator is available.<br><ul style="list-style-type: none"> <li>- A wide range of 3.6 - 16MHz is available for main oscillator</li> <li>- 32KHz is available for sub oscillator</li> </ul> Sub clock is enable/disable by register settings                                                                                                                                                                                                                                                                       |
| Clock                   | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>CLK_CLKO (Clock Output Function) is supported.<br>Main Oscillation Stabilization Wait Time (at 4 MHz):8.19ms (Initial value)                                                                                                                                                                                                                                                                                                                                                                                                      |
| Embedded CR oscillation | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Stabilization time is as followings.<br><ul style="list-style-type: none"> <li>- 0.35 ms to 0.8 ms for 4 MHz (Fast clock)</li> <li>- 0.43 ms to 1.28 ms for 100 kHz (Slow clock)</li> </ul>                                                                                                                                                                                                                                                                                                                                       |
| Clock Supervisor        | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>This product series doesn't support clock supervisor output port. (Related register and internal circuit is implemented.)                                                                                                                                                                                                                                                                                                                                                                                                         |
| Reset                   | RSTX pin + MD pin simultaneous assert INITX (Same as INITX pin input)<br><ul style="list-style-type: none"> <li>- Occurrence factor: Simultaneously inputting "L" level to RSTX pin and inputting "L" level to MD pin</li> <li>- Release factor: Inputting "H" level to RSTX pin</li> </ul> See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Following resets are not mounted on this device.<br><ul style="list-style-type: none"> <li>- SRSTX (and nSRST pin)</li> </ul> The product series does not support EX5VRST and writing EX5VRSTCNT bits in SYSC0_SPECFGR has no effect. |

| Feature                          | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hardware watchdog                | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Hardware watchdog function stops during PSS mode. In the related register of HWDG_CFG, the bit ALLOWSTOPCLK is always read as 1 (HWDG_CFG.ALLOWSTOPCLK = 1).<br>The product series doesn't support Watchdog Counter Monitor Output port. (Related register and internal circuit is implemented.)                                                                                                                                                                                                             |
| Standby mode                     | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Standby mode with 5 V (or 3 V) single external power supply is available.<br>Turning off the 1.2 V external power supply in standby mode is available.<br>The long term pulse of the indicator PWM can be outputted during RTC Standby mode.                                                                                                                                                                                                                                                                 |
| PLL / SSCG PLL                   | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Use case assumption is following.<br>PLL <ul style="list-style-type: none"> <li>- Sound system clock</li> <li>- Sound frequency master clock</li> <li>- Peripherals</li> <li>- Display clock</li> <li>- Trace clock</li> </ul> SSCG <ul style="list-style-type: none"> <li>- CPU core</li> <li>- GDC core</li> <li>- Hyper BUS</li> <li>- DDR-HSSPI</li> </ul> Product supports down spread and center spread modes with the conditions defined in <a href="#">9.1.4.3 Internal Clock Timing (S6J3310)</a> . |
| External Interrupts              | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| NMI                              | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>1 NMI pin.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Memory Protection                | MPU16 AHB: See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>MPU for AXI: ch.0<br>MPU for AHB: ch.1<br>Additional MPU for Graphic sub system, MediaLB and Ethernet AVB. They are described on the chapter of MPU for AHB and MPU for AXI<br><br>To configure Lock or Unlock for both MPUXn_UNLOCK and MPUHn_UNLOCK,<br>- Lock: 0x112ABB56<br>- Unlock: 0xACCABB56                                                                                                                                                                                              |
| Peripheral Protection            | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br>Protected peripherals are described in the base address map.                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Internal Memories<br>System SRAM | 384 KByte<br>1 wait cycle is necessary for RAM read at over 120MHz.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Internal Memories<br>TCRAM       | 128 KByte                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Internal Memories<br>Backup RAM  | 32 KByte<br>Backup RAM can only be operated in RUN mode (normal operation mode). In other mode the memory content should be retained, but it cannot be operated. SLEEP control for Backup RAM is not supported and cannot be used.                                                                                                                                                                                                                                                                                                                                         |

| Feature                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Embedded Program/Work Flash Memory            | <p>Embedded Program Flash can be accessed with 0-wait-cycle if CPU frequency is 80MHz or less.<br/>           0-wait-cycle: 80MHz or less.<br/>           1-wait-cycle: 160MHz or less.<br/>           2-wait-cycle: more than 160MHz.</p> <p>Work Flash can be accessed with 0-wait-cycle if CPU frequency is 12.5MHz or less.<br/>           6-wait-cycle: 80MHz or less.<br/>           12-wait-cycle: 160MHz or less.</p> <p>The wait-cycle setting see the <i>Traveo™ Platform Hardware Manual</i> in details.<br/>           The CLK_FCLK maximum frequency should be referred in <a href="#">9.1.4.3</a>.</p> <p>Erase suspend is supported. Reading and writing to the other sector are possible when Flash Erase is suspended.<br/>           Serial Flash programing and Parallel Flash programing are supported.<br/>           Margin mode is not supported.</p>                                                       |
| Internal Power Domain                         | PD1: Always ON<br>PD2: Cortex R5F platform/ GDC/ additional peripherals<br>PD4: Backup RAM in Always On domain<br>PD6: Peripherals in Always On domain<br>* The chapter of the block diagram explains in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Power Supply                                  | 5 V, and 3 V, 1.2 V external power supply is required.<br>Built in LDO provides internal power supply for Always On region (PD1).<br>1.2 V external power supply control pin is supported.<br>3 V external power supply could be controlled by GPIO.<br>There are constraints of power on/off sequence.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Low Voltage Detection                         | LVD for external voltage is supported.<br>LVD for internal voltage is supported.<br>See <a href="#">9.1.4.11</a> and <a href="#">9.1.4.12</a> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Low voltage detection for RAM retention (RVD) | RVD for RAM retention is effective during the standby mode only. That is, it is only for the Backup RAM of 32KB that the function is available.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Resource inter-connect                        | The output signal of some resources can be inputted to the other resource.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| I/O Ports                                     | 5 V general purpose I/O<br>3 V general purpose I/O<br>Multi input level and multi output drivability<br>Pull-up, pull-down function is available.<br>Resource input and output is multiplexed.<br>+B input is allowed many pins of 3.3 V, 5 V and 3.3 V/5 V I/O domain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| A/D Converter                                 | 12 bit resolution, 2 unit (Unit0 is possible to select channels 4-31. Unit1 is possible to select channels 32-63.)<br>48 channels of analog input for TEQFP208<br>48 channels of analog input for TEQFP176<br>35 channel of analog input for TEQFP144<br>24 channels of them are shared with the SMC for TEQFP208/176/144<br>External trigger and timer trigger are available.<br>The description of the A/D converter function should be referred in the <i>S6J3300 Hardware Manual</i> . Though the chapter of I/O port in <i>Traveo™ Platform Hardware Manual</i> describes another A/D converter function, do not refer it.<br>A/D Channel Control Register (ADC12Bn_CHCTRL0) [bit5:0] ANIN[5:0]: Analog Input Selection bits.<br>This register setting is possible of channel 0-31 (the register value is 00_0000 to 01_1111).<br>AN39 to AN63 are not support for S6J33xxxAx, S6J33xxxCx, S6J33xxxEx, and S6J33xxxGx option. |
| CRC                                           | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

| Feature                                     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Programmable CRC                            | DMA support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Sound Generator                             | Produces sound/melody with varying frequency and amplitude for convenient duration<br>Square wave sound output<br>Automatic linear amplitude increment or decrement<br>Interrupt request generated when specified sound length has ended                                                                                                                                                                                                                                                                            |
| Sound Waveform generator                    | Sine waveform, saw-tooth waveform and Square waveform are generated with easy configuration of the parameters which specified sound sources.<br>Fade-in and Fade-out control for reverberation.                                                                                                                                                                                                                                                                                                                     |
| Sound Mixer                                 | The input channels of 0 - 4 are reserved for waveform generator.<br>Mixing different sampling frequency sounds.<br>Mixing Internal sounds and External I2S input sounds.<br>Saturating addition function for keeping sound quality.<br>Cut a specific frequency data by digital filter.<br>LPF is support by FIR filter.<br>Fade-in and Fade-out control.                                                                                                                                                           |
| PCM-PWM                                     | Conversion of PCM audio streaming to Pulse Width Modulated signals.<br>Supports 2 output channels for stereo and mono data<br>Up to 16-bit output sample resolution<br>Support for half and full H-bridges                                                                                                                                                                                                                                                                                                          |
| Audio DAC                                   | The sound source of the fixed 48 kHz sampling frequency can be outputted.<br>1 unit, L/R channels support.<br>BTL connection is available.                                                                                                                                                                                                                                                                                                                                                                          |
| I2S                                         | 2 ch.<br>- I2S0 only supports the output of sound sources.<br>- I2S1 supports both the input and the output.                                                                                                                                                                                                                                                                                                                                                                                                        |
| Base Timer                                  | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br><br>A unit consists of a pair of 16-bit base timers. 16 units, that is, 32 channels of base timers are available.                                                                                                                                                                                                                                                                                                                                     |
| Reload Timer                                | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| I/O Timer                                   | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Up/Down Counter                             | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Multi-Functional Serial (MFS)               | See the <i>Traveo™ Platform Hardware Manual</i> in detail.<br><br>Only 2 ports of MFS have the dedicated I/O for I <sup>2</sup> C.<br>See I <sup>2</sup> C timing in 9.1.4.6 Multi-Function Serial in detail.<br>The I <sup>2</sup> C is not designed to be hot swappable.<br>CTS/RTS is not mounted (hardware flow control is not supported for this series.)                                                                                                                                                      |
| CAN-FD                                      | Flexible data rate is supported.<br>16 KB/ch of message RAM is available.<br>The clock output from CAN pre-scaler is supplied to every CAN. ECC error generation function of the message RAM is not supported for this device. Therefore CAN FD ECC Error Insertion Control Register (FDFECCR) is not writeable.                                                                                                                                                                                                    |
| Real Time Clock (RTC) with auto-calibration | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| DDR High Speed SPI                          | ch.0: HSSPI as a MCU peripheral                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Hyper BUS I/F                               | ch.0: Hyper Bus as a MCU peripheral<br>The following register is not supported and cannot be used.<br>- Controller Status Register (HYPERBUSIn_CSR)<br>- Interrupt Enable Register (HYPERBUSIn_IEN)<br>- Interrupt Status Register (HYPERBUSIn_ISR)<br>- Write Protection Register (HYPERBUSIn_WPR)<br>- Test Register (HYPERBUSIn_TEST)<br>GPO signal can only be used for "Internal Control example by GPO" in this product, that is, it can select using HyperBus of PF or using HyperBus of Graphic Sub System. |

| Feature                                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stepper Motor Control (SMC)            | Each channel has 6 motor drivers with high output capability                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| External Interrupt Capture Unit (EICU) | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Ethernet AVB                           | 10/100 Mbps<br>MII-Interface<br>Supports Audio-Video Bridging (AVB)                                                                                                                                                                                                                                                                                                                                                                                                                          |
| MediaLB                                | MOST50 (1024FS)<br>3 wires<br>Maximum 15 ch is available.                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| LCD Controller                         | TEQFP208: 4 com x 32 seg<br>TEQFP176: 4 com x 32 seg<br>TEQFP144: 4 com x 24 seg<br>LCDC pins are initialized with Reset. (Stop LCDC alternating current output)<br>Duty and Static of segment output is supported. (SEG23/ST0, SEG24/ST1, SEG25/ST2, SEG26/ST3, SEG27/ST4, SEG28/ST5, SEG29/ST6, SEG30/ST7, SEG31/ST8)                                                                                                                                                                      |
| SHE                                    | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Source Clock Timer                     | See the <i>Traveo™ Platform Hardware Manual</i> in detail.                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Graphics Subsystem                     | 80 MHz maximum clock frequency<br>Variable setting about GDC clock. (Asynchronous with CPU clock)<br>480 x 272 pixels maximum frame resolution<br>Video modes up to 25 MHz pixel clock<br>RGB888,<br>Order replacement of RGB pins.                                                                                                                                                                                                                                                          |
| External BUS                           | TEQFP208: 22 bit address and 16 bit data<br>TEQFP176: 22 bit address and 16 bit data<br>TEQFP144: 15 bit address and 8 bit data                                                                                                                                                                                                                                                                                                                                                              |
| ARH                                    | 2 ch<br>This device does not have PHY macro and its function.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Power Supply Control (PSC)             | PSC (PSC_1) output is used for external 1.2 V power supply module control and automatically switched with the following condition.<br>"High": Request to supply VCC12<br>- "Power ON Reset" is released<br>- CPU wakes up from PSS shutdown mode<br>"Low": Request to stop supplying VCC12<br>- CPU transfers from RUN mode to PSS shutdown mode.<br><br>For timing chart of output signals include PSC in detail, see the " <i>S6J3300 Hardware Manual</i> " and chapter "State Transition" |

### 3.2.1 Ethernet

The following functions are not supported.

| Functions                                                                                                                        | Remarks |
|----------------------------------------------------------------------------------------------------------------------------------|---------|
| External FIFO Interface                                                                                                          |         |
| Additional Low Latency TX FIFO Interface for DMA configurations                                                                  |         |
| MAC Transmit Block <ul style="list-style-type: none"> <li>- half-duplex</li> <li>- collision</li> <li>- back_pressure</li> </ul> |         |
| MAC Filtering Block <ul style="list-style-type: none"> <li>- external address match</li> <li>- Wakeup On Lan</li> </ul>          |         |
| Energy Efficient Ethernet support                                                                                                |         |
| LPI Operation in Cadence IP                                                                                                      |         |
| PHY Interface <ul style="list-style-type: none"> <li>- GMII</li> <li>- SGMII</li> <li>- TBI</li> </ul>                           |         |
| 10/100/1000 Operation <ul style="list-style-type: none"> <li>- 1000 M</li> </ul>                                                 |         |
| SGMII Operation                                                                                                                  |         |
| Jumbo Frames                                                                                                                     |         |
| Physical Control Sub-Layer                                                                                                       |         |

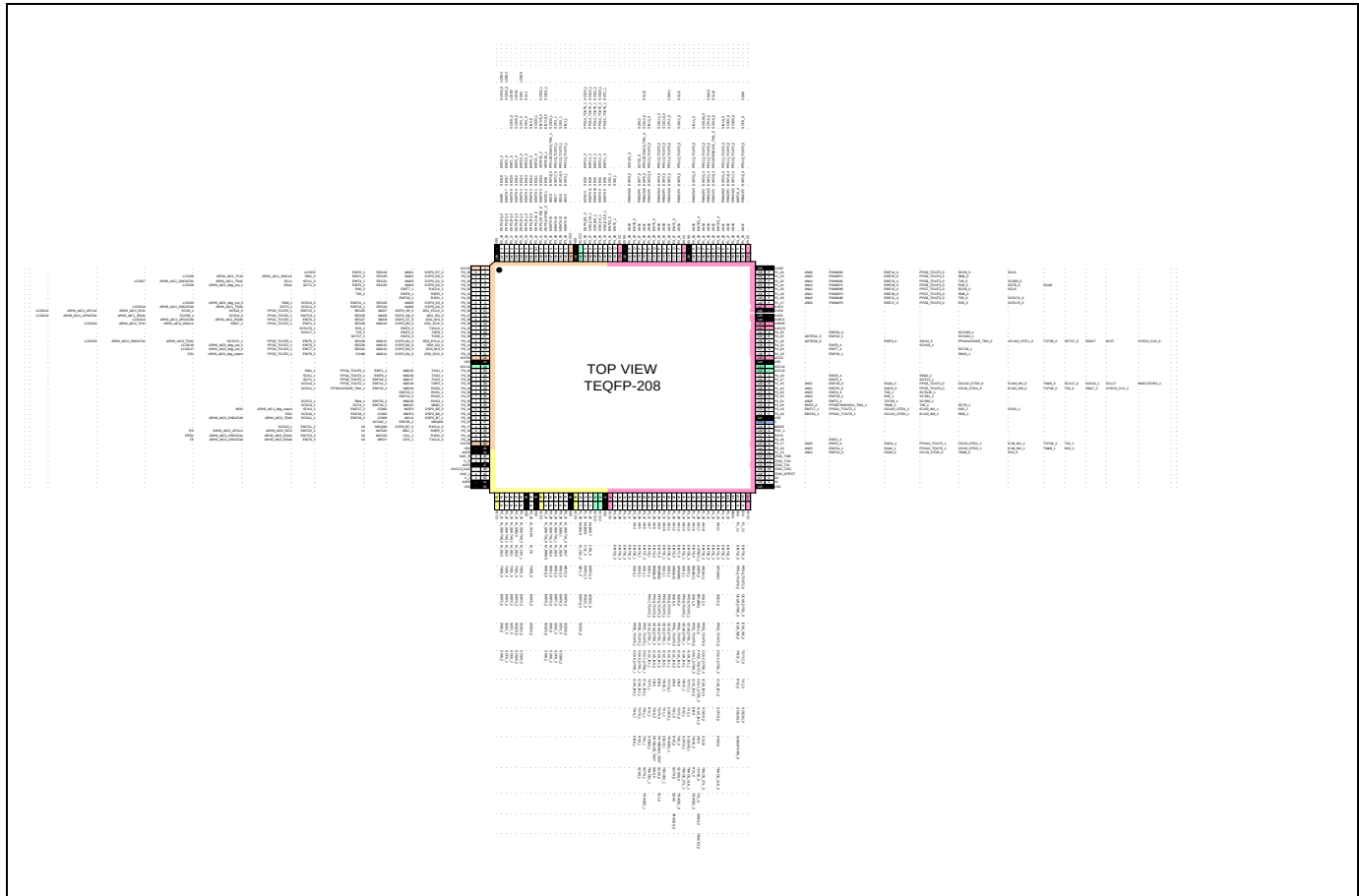
## 4. Package and Pin Assignment

### 4.1 Pin Assignment

Alphabets with pin numbers are signs specify I/O circuit type.

#### 4.1.1 TEQFP-208 Pin Assignment

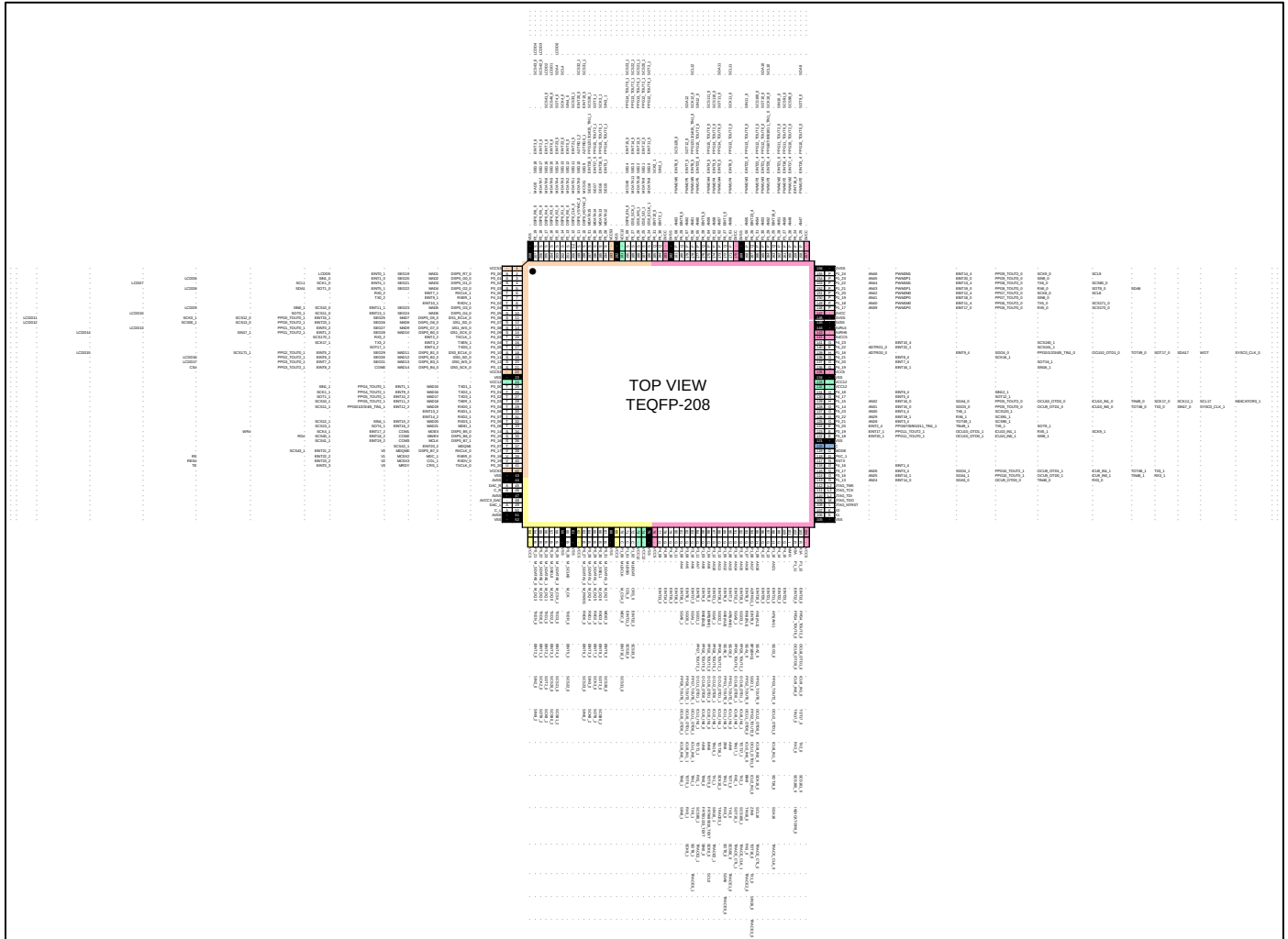
**Figure 4-1: TEQFP-208 (S6J331xKyz \*1)**



\*1: x, y, z are selected from the following parameters:

- x: E, D, C, B (Memory Size)
- y: S, A, B, U, C, D, T, E, F, V, G, H (Option)
- z: C, D, E (Revision)

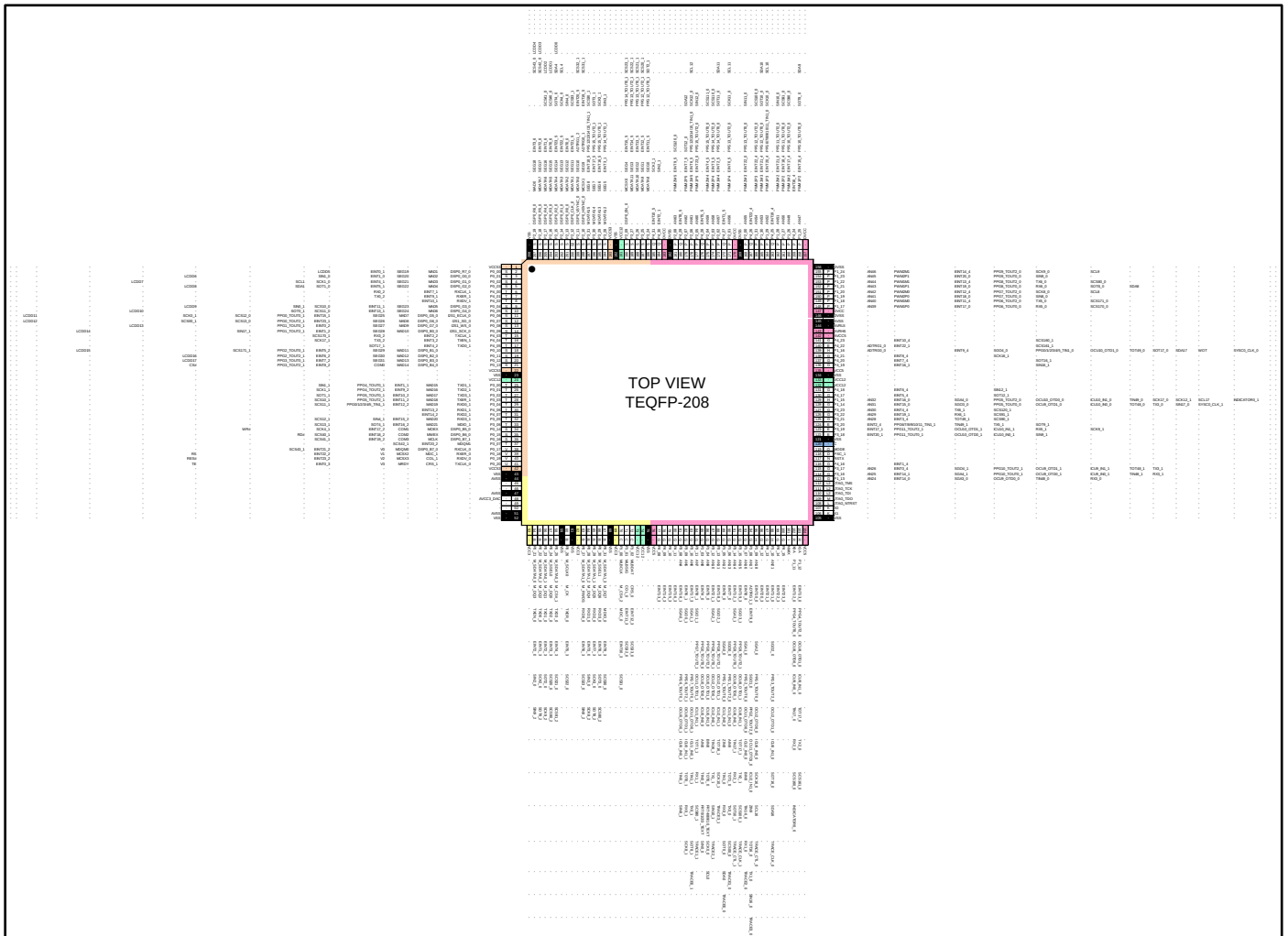
**Figure 4-2: TEQFP-208 (S6J332xKyz \*1)**



\*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

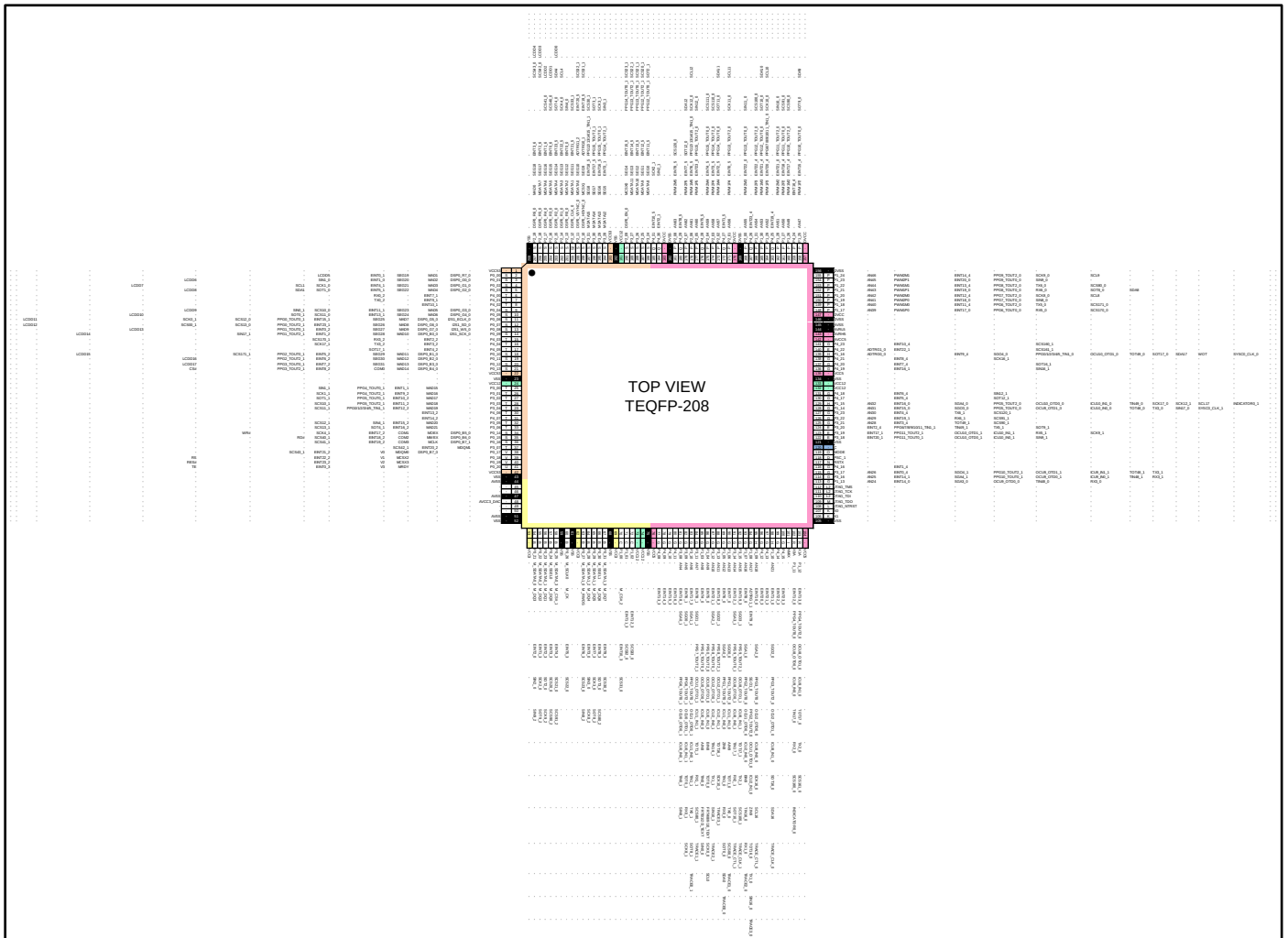


**Figure 4-3: TEQFP-208 (S6J333xKyz \*1)**



\*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

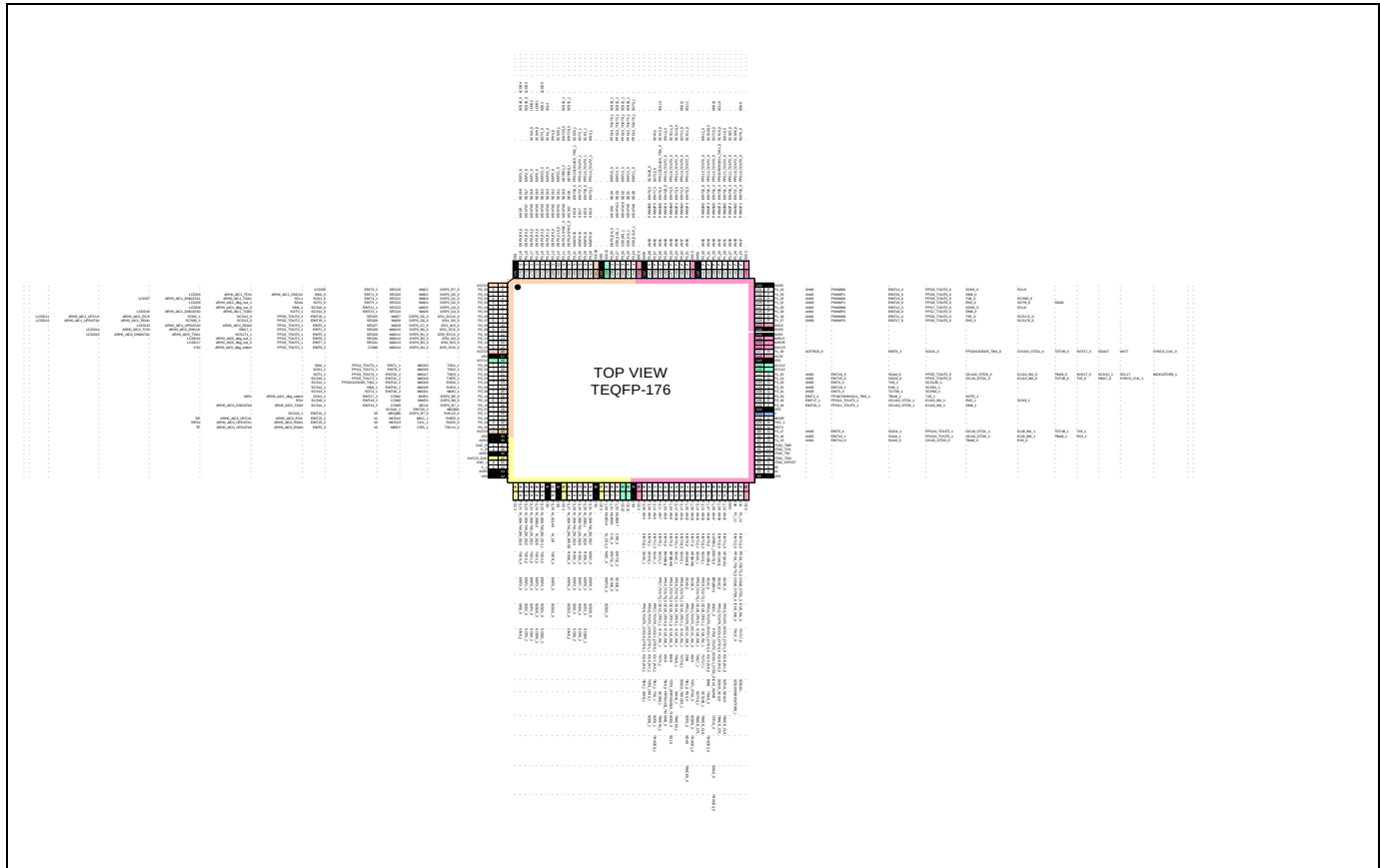
**Figure 4-4: TEQFP-208 (S6J334xKyz \*1)**



\*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

#### 4.1.2 TEQFP-176 Pin Assignment

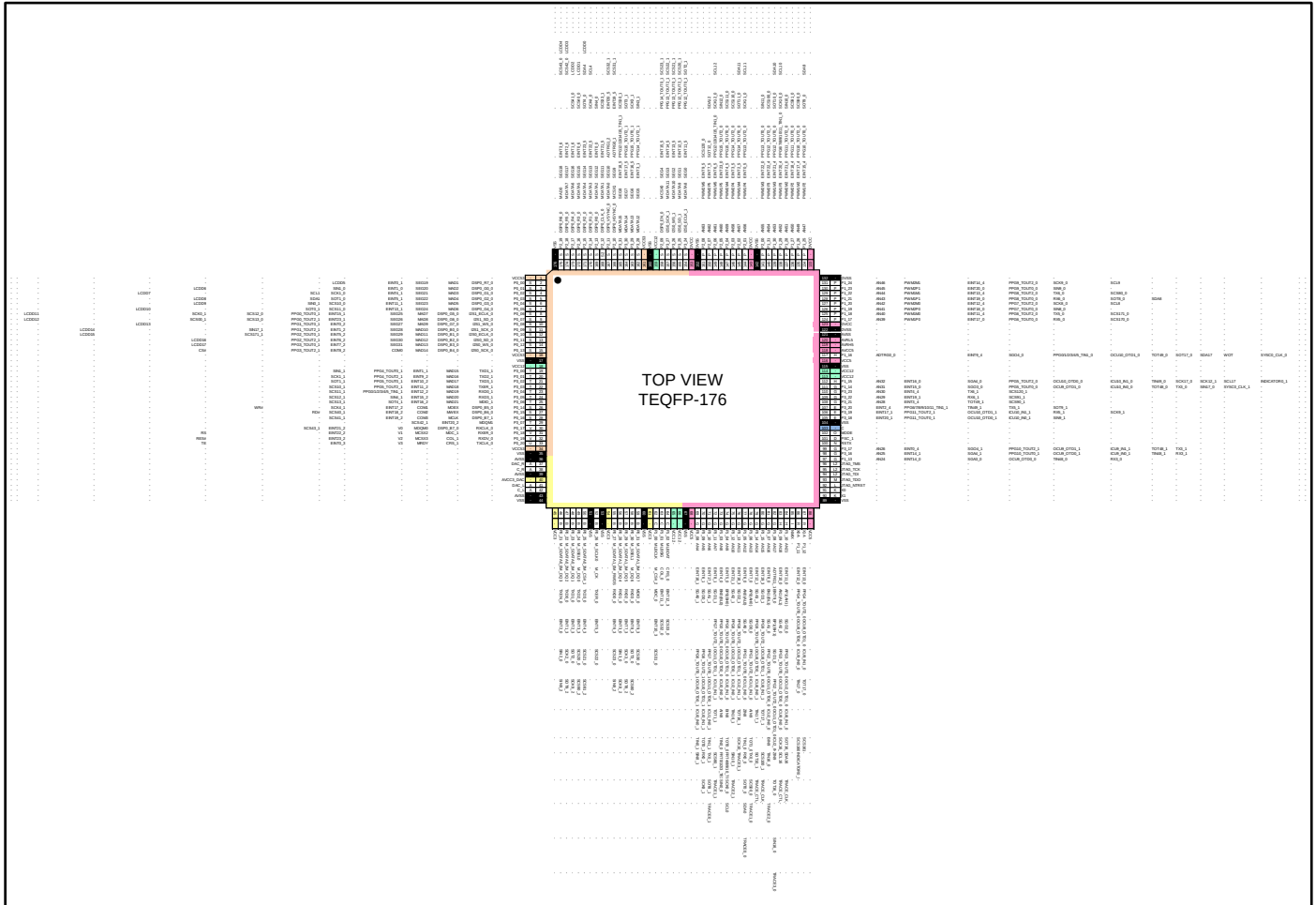
**Figure 4-5: TEQFP-176 (S6J331xJyz \*1)**



\*1: x, y, z are selected from the following parameters:

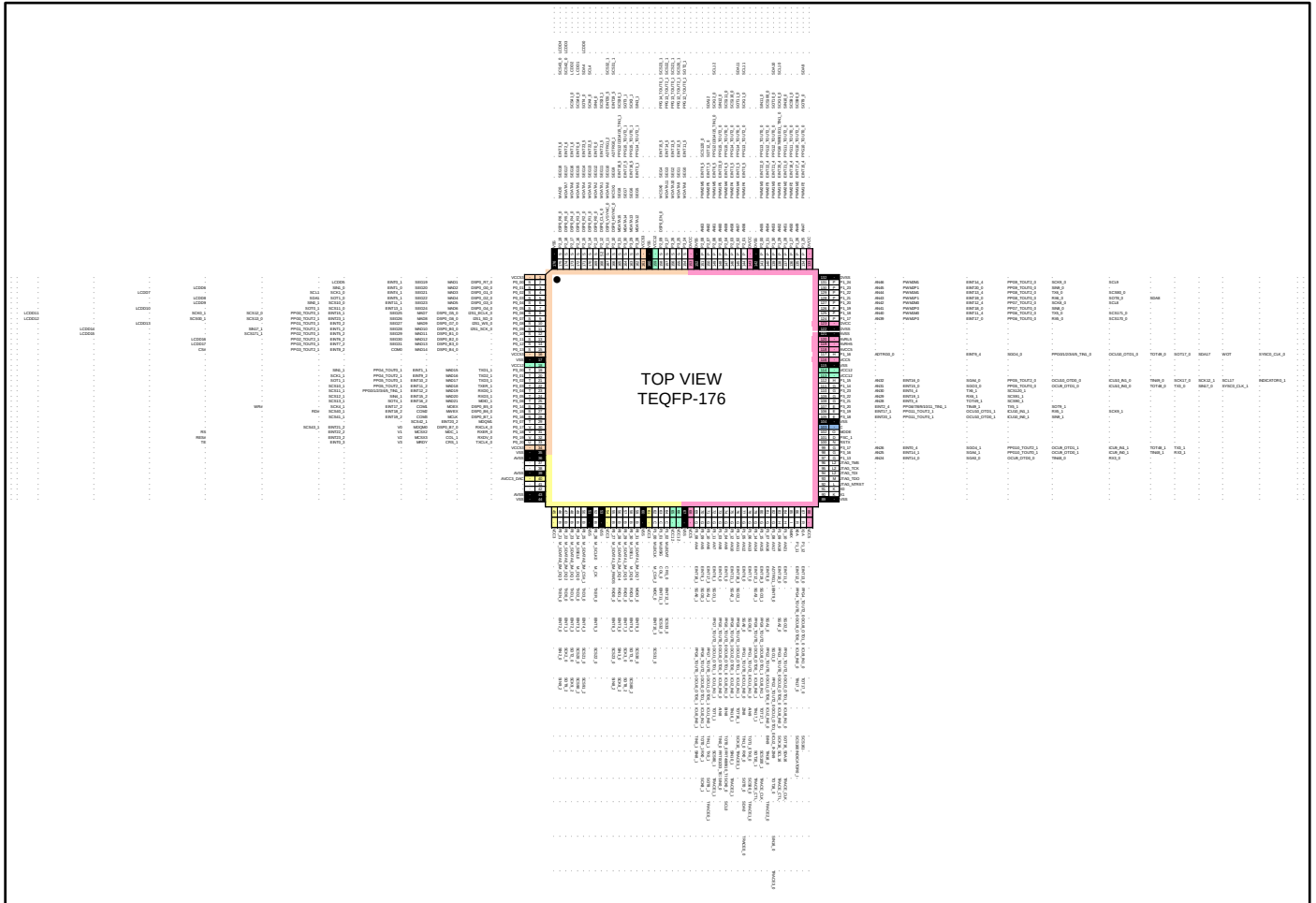
- x: E, D, C, B (Memory Size)
- y: S, A, B, U, C, D, T, E, F, V, G, H (Option)
- z: C, D, E (Revision)

**Figure 4-6: TEQFP-176 (S6J332xJyz \*1)**



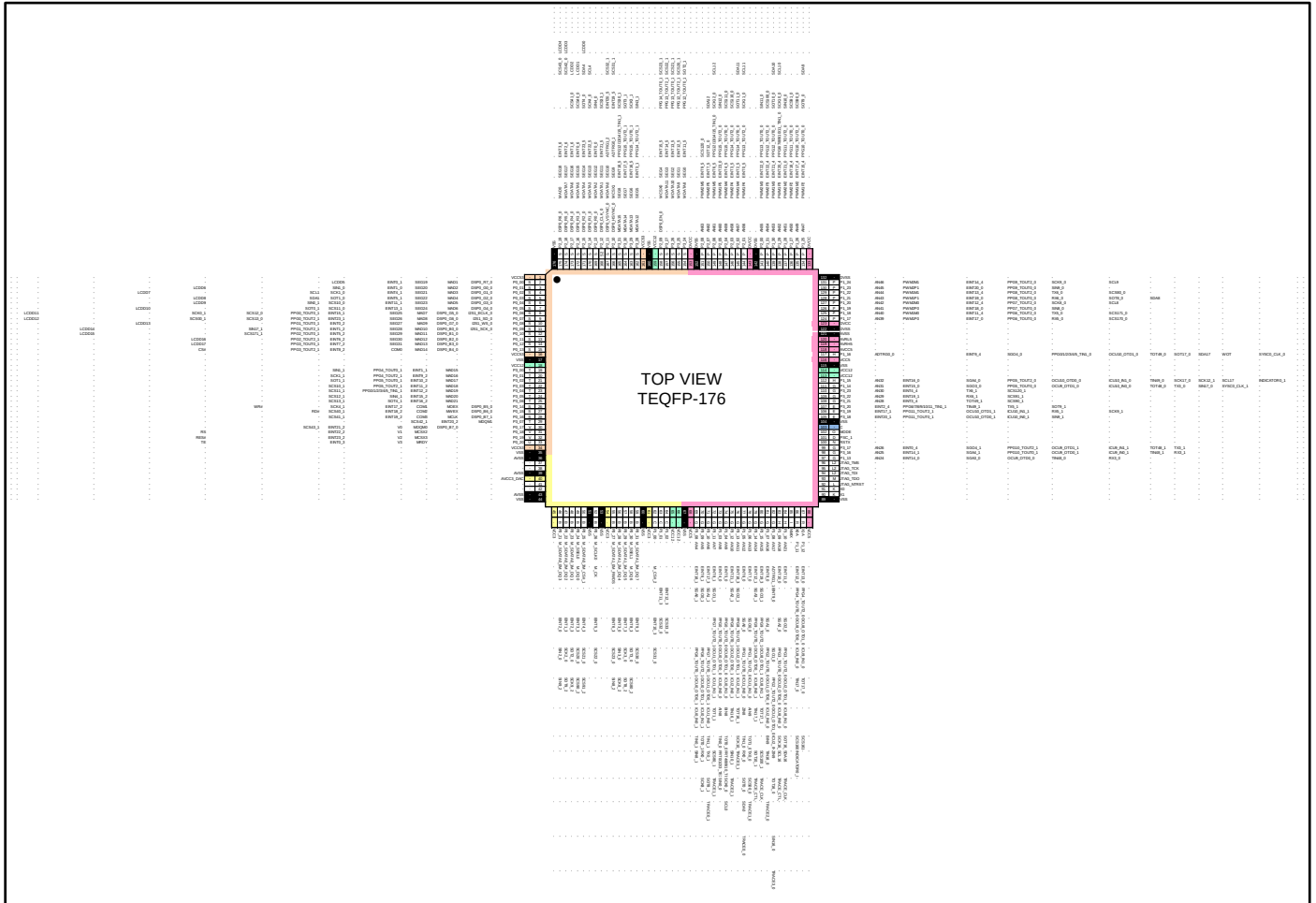
- \*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

**Figure 4-7: TEQFP-176 (S6J333xJyz \*1)**



\*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

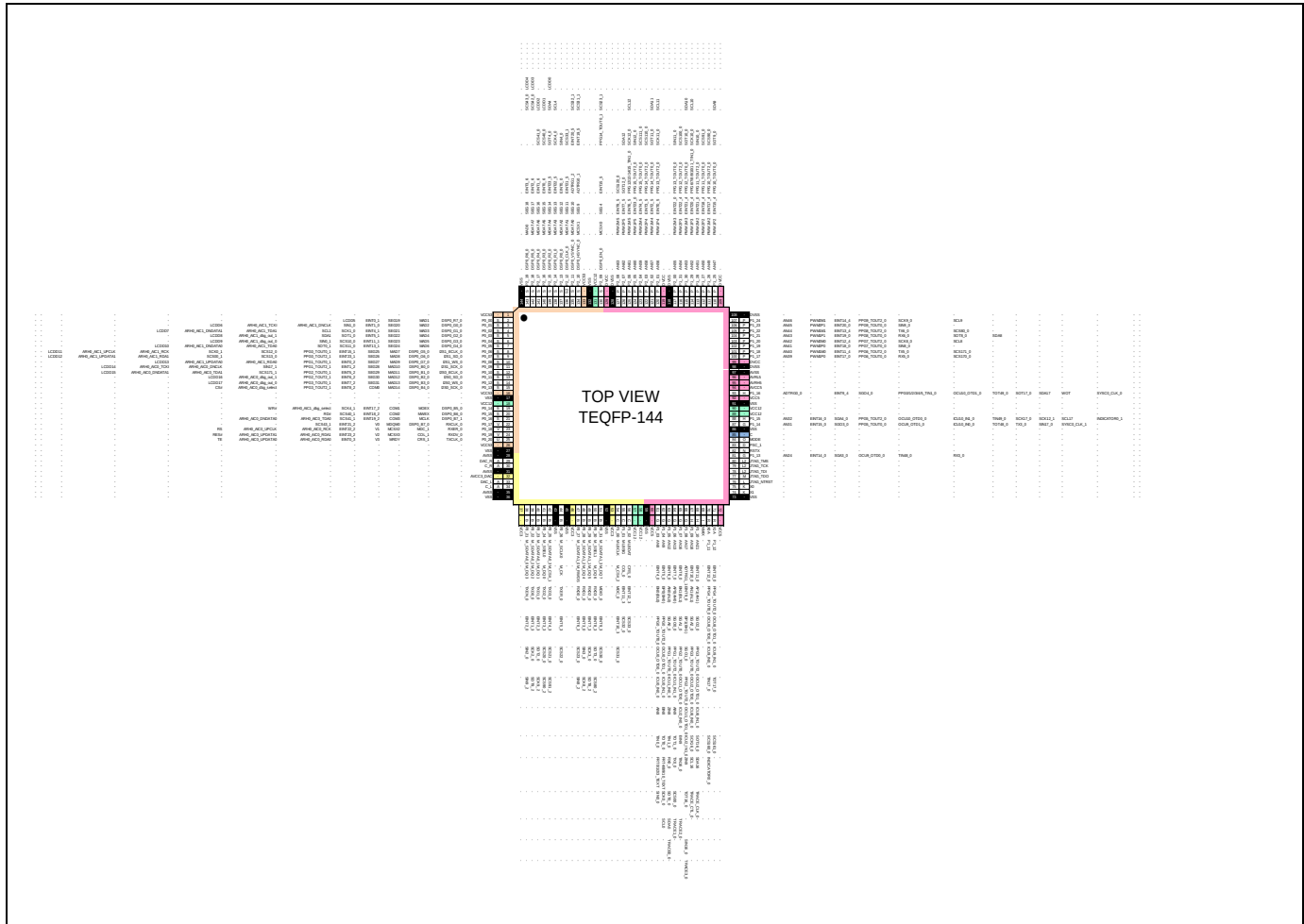
**Figure 4-8: TEQFP-176 (S6J334xJyz \*1)**



- \*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

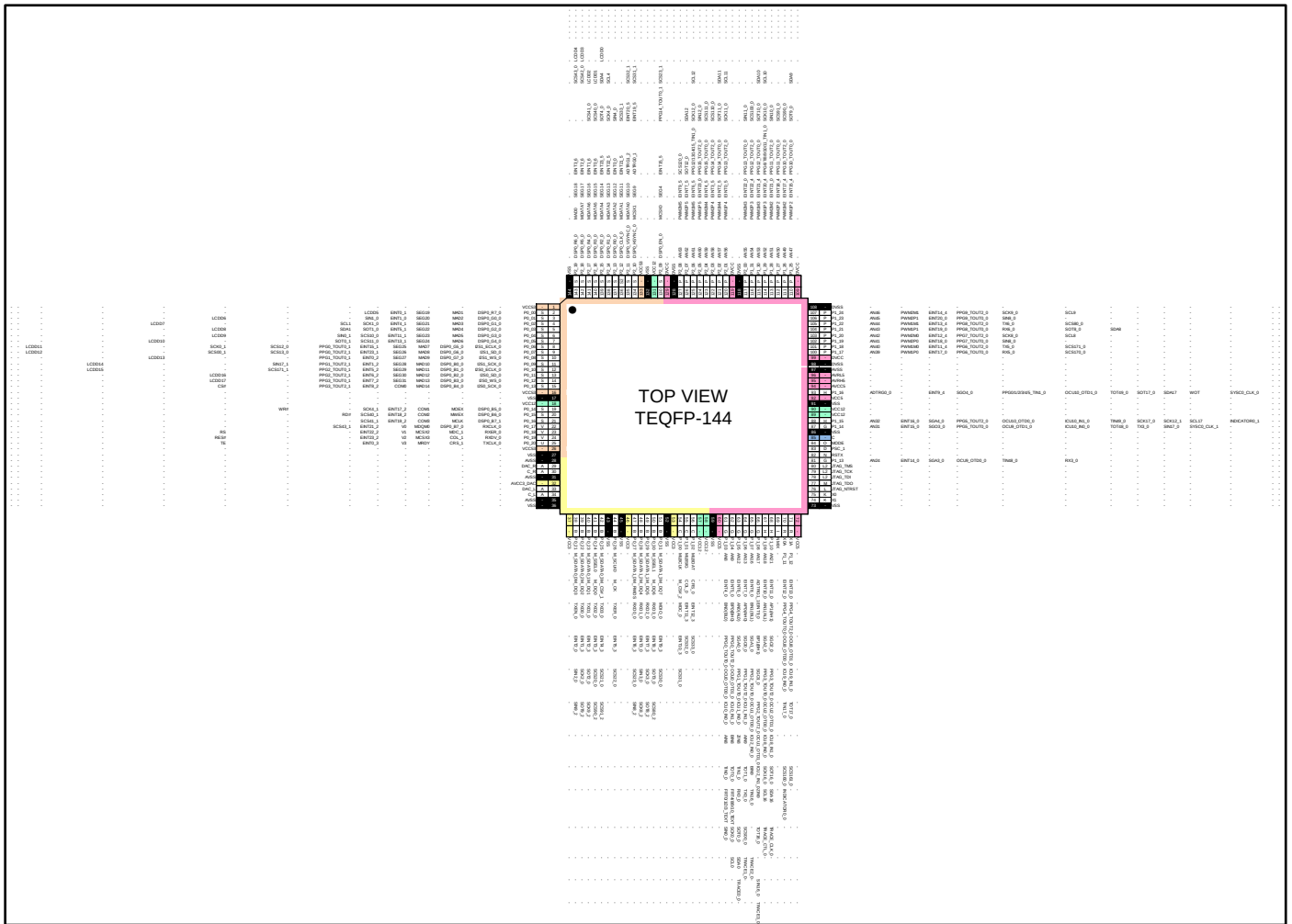
#### 4.1.3 TEQFP-144 Pin Assignment

Figure 4-9: TEQFP-144 (S6J331xHyZ \*1)



- \*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)

**Figure 4-10: TEQFP-144 (S6J332xHyZ \*1)**



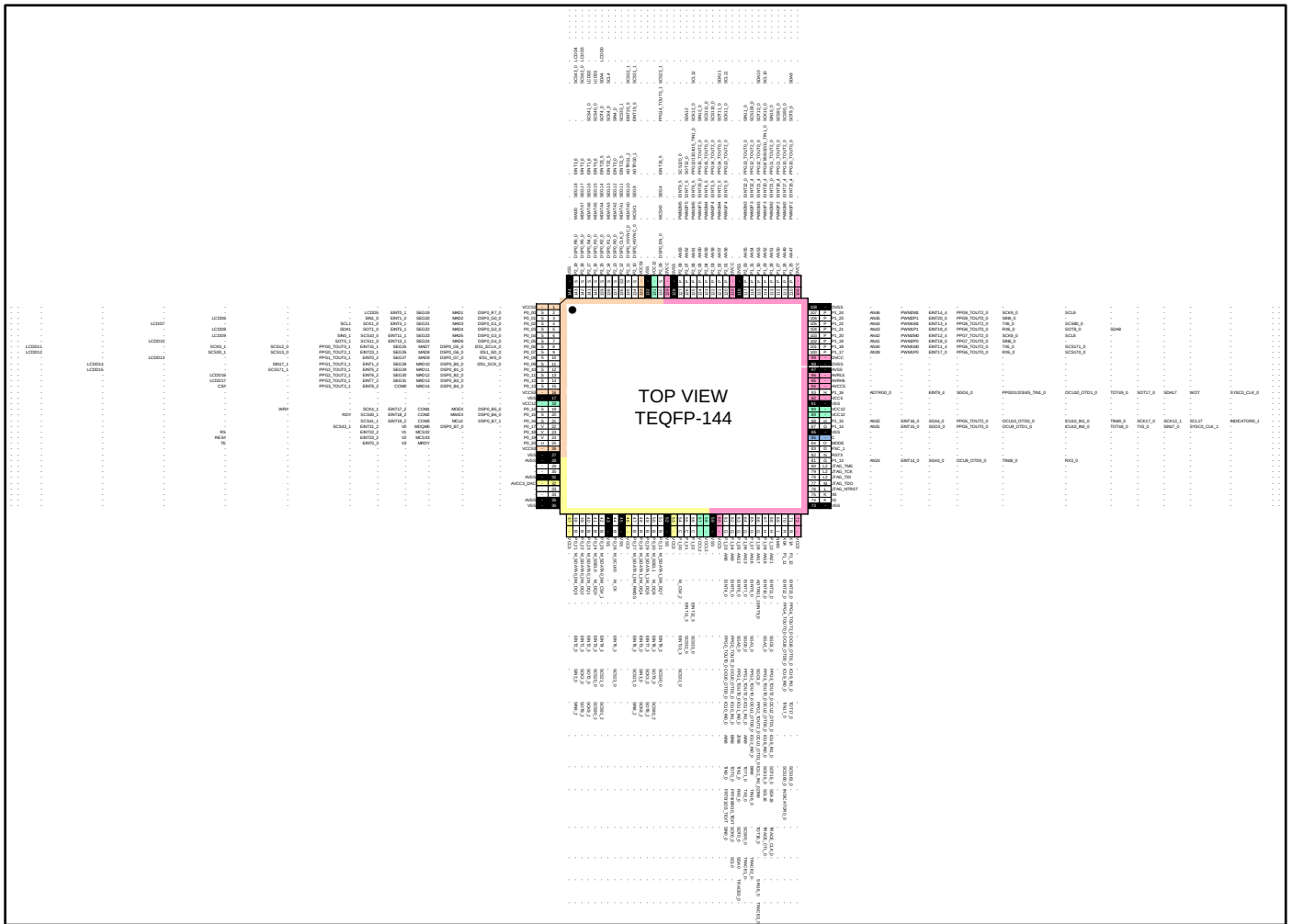
- \*1: x, y, z are selected from the following parameters:  
 x: E, D, C, B (Memory Size)  
 y: S, A, B, U, C, D, T, E, F, V, G, H (Option)  
 z: C, D, E (Revision)



[illegible]

Document Number: 002-10635 Rev. \*I

Figure 4-12: TEQFP-144 (S6J334xHyZ \*1)



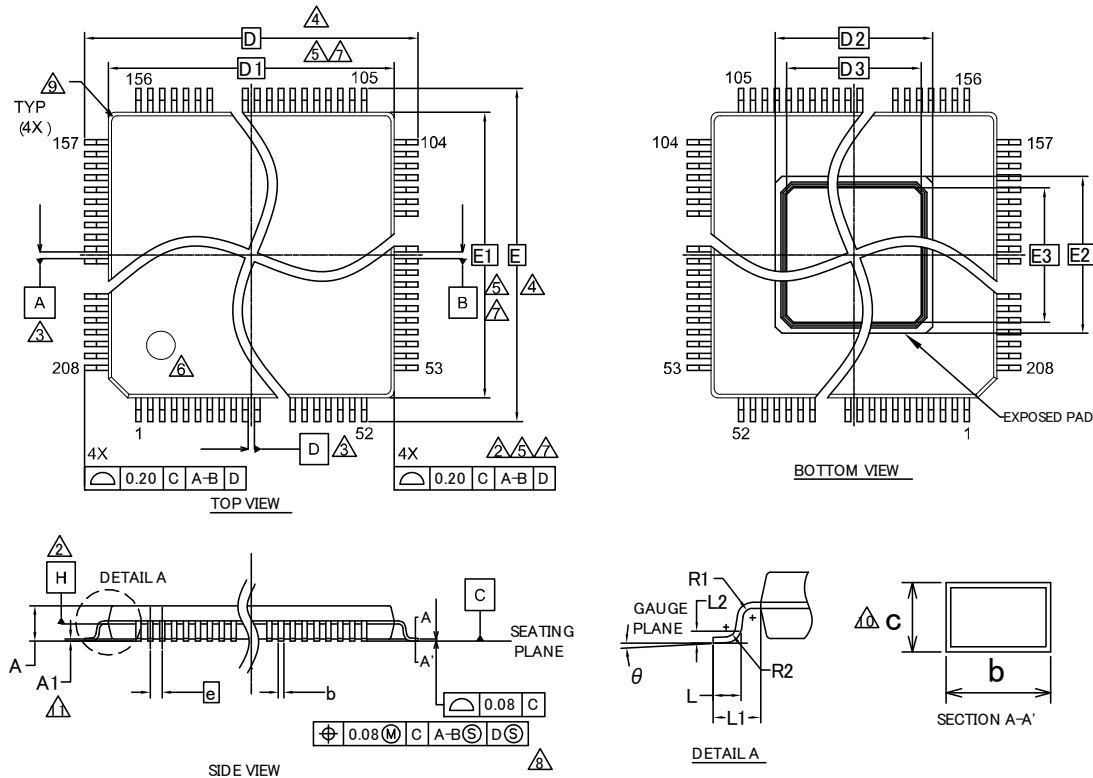
- \*1: x, y, z are selected from the following parameters:
- x: E, D, C, B (Memory Size)
  - y: S, A, B, U, C, D, T, E, F, V, G, H (Option)
  - z: C, D, E (Revision)

## 4.2 Package Dimensions

### 4.2.1 TEQFP208

Figure 4-13: TEQFP208

| Package Type  | Package Code |
|---------------|--------------|
| TEQFP 208 pin | LEW208       |



| SYMBOL | DIMENSION |           |      |
|--------|-----------|-----------|------|
|        | MIN.      | NOM.      | MAX. |
| A      | —         | —         | 1.70 |
| A1     | 0.05      | —         | 0.15 |
| D      | —         | 30.00 BSC | —    |
| D1     | —         | 28.00 BSC | —    |
| D2     | —         | 7.05 REF  | —    |
| D3     | —         | 6.05 REF  | —    |
| E      | —         | 30.00 BSC | —    |
| E1     | —         | 28.00 BSC | —    |
| E2     | —         | 7.05 REF  | —    |
| E3     | —         | 6.05 REF  | —    |
| R1     | 0.08      | —         | —    |
| R2     | 0.08      | —         | 0.20 |
| θ      | 0°        | 4°        | 8°   |
| c      | 0.09      | —         | 0.20 |
| b      | 0.17      | 0.22      | 0.27 |
| L      | 0.45      | 0.60      | 0.75 |
| L1     | —         | 1.00 REF  | —    |
| L2     | —         | 0.25      | —    |
| e      | —         | 0.50 BSC  | —    |

#### NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS.
- DATUM PLANE H IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
- DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.
- TO BE DETERMINED AT SEATING PLANE C.
- DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PRE SIDE. DIMENSIONS D1 AND E1 INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.
- DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
- REGARDLESS OF THE RELATIVE SIZE OF THE UPPER AND LOWER BODY SECTIONS, DIMENSIONS D1 AND E1 ARE DETERMINED AT THE LARGEST FEATURE OF THE BODY EXCLUSIVE OF MOLD FLASH AND GATE BURRS, BUT INCLUDING ANY MISMATCH BETWEEN THE UPPER AND LOWER SECTIONS OF THE MOLDER BODY.
- DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. THE DAMBAR PROTRUSION (S) SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED b MAXIMUM BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE LEAD FOOT.
- EXACT SHAPE AND SIZE OF THIS FEATURE IS OPTIONAL.
- THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.
- A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

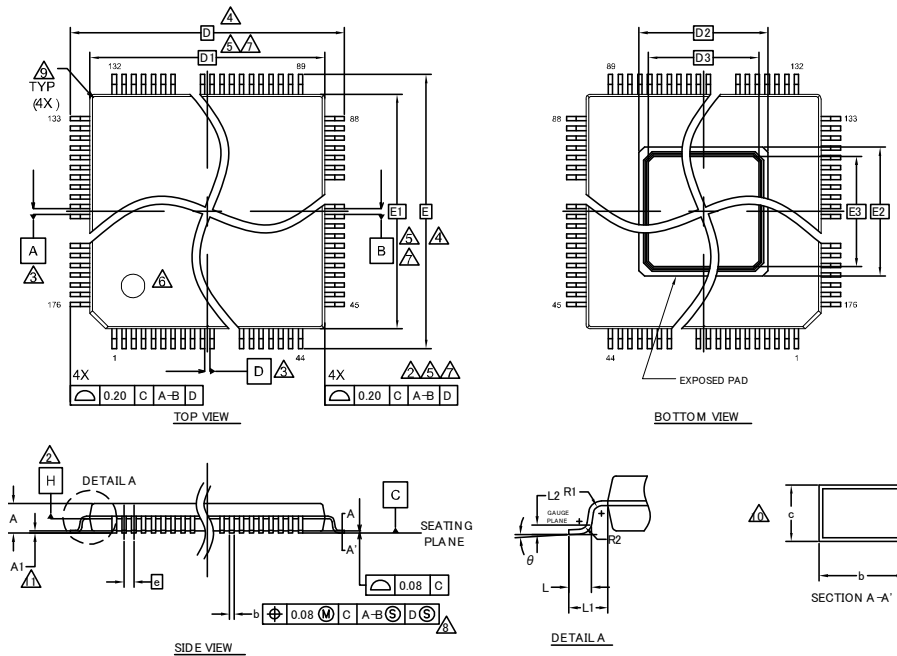
002-12477 \*\*

PACKAGE OUTLINE: 208 LEAD TEQFP  
28.0X28.0X1.7 MM LEW208 REV\*\*

#### 4.2.2 TEQFP176

Figure 4-14: TEQFP176

| Package Type  | Package Code |
|---------------|--------------|
| TEQFP 176 pin | LEV176       |



| SYMBOL | DIMENSION |      |      |
|--------|-----------|------|------|
|        | MIN.      | NOM. | MAX. |
| A      | —         | —    | 1.70 |
| A1     | 0.05      | —    | 0.15 |
| D      | 26.00 BSC |      |      |
| D1     | 24.00 BSC |      |      |
| D2     | 6.65 REF  |      |      |
| D3     | 5.45 REF  |      |      |
| E      | 26.00 BSC |      |      |
| E1     | 24.00 BSC |      |      |
| E2     | 6.65 REF  |      |      |
| E3     | 5.45 REF  |      |      |
| R1     | 0.08      | —    | 0.20 |
| R2     | 0.08      | —    | —    |
| θ      | 0°        | 2°   | 8°   |
| c      | 0.09      | —    | 0.20 |
| b      | 0.17      | 0.22 | 0.27 |
| L      | 0.45      | 0.60 | 0.75 |
| L1     | 1.00 REF  |      |      |
| L2     | 0.25      |      |      |
| e      | 0.50 BSC  |      |      |

#### NOTES

- ALL DIMENSIONS ARE IN MILLIMETERS.
- DATUM PLANE H IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
- DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.
- TO BE DETERMINED AT SEATING PLANE C.
- DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PRE SIDE. DIMENSIONS D1 AND E1 INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.
- DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
- REGARDLESS OF THE RELATIVE SIZE OF THE UPPER AND LOWER BODY SECTIONS, DIMENSIONS D1 AND E1 ARE DETERMINED AT THE LARGEST FEATURE OF THE BODY EXCLUSIVE OF MOLD FLASH AND GATE BURRS, BUT INCLUDING ANY MISMATCH BETWEEN THE UPPER AND LOWER SECTIONS OF THE MOLDER BODY.
- DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. THE DAMBAR PROTRUSION (S) SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED b MAXIMUM BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE LEAD FOOT.
- EXACT SHAPE AND SIZE OF THIS FEATURE IS OPTIONAL.
- THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.
- A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

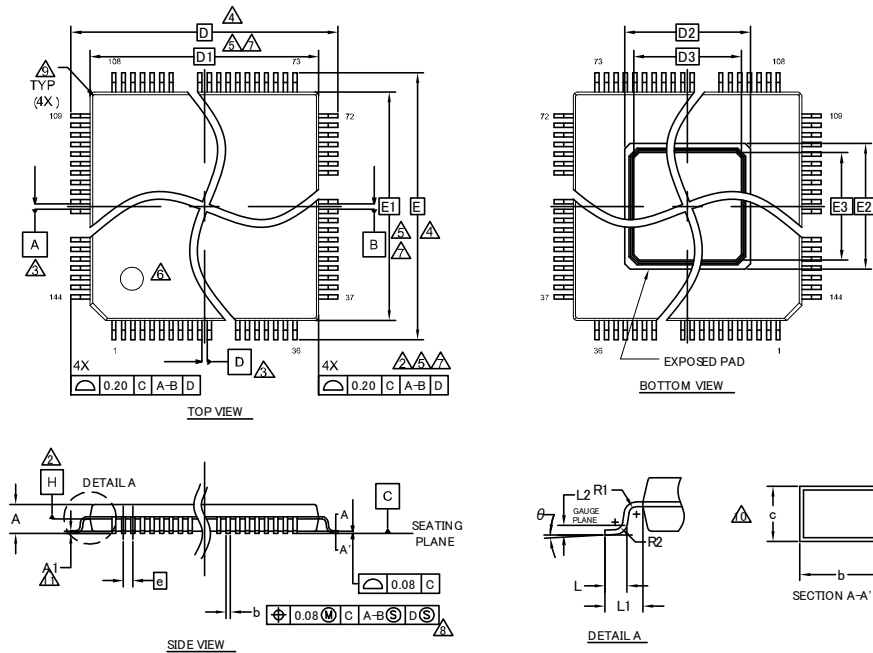
002-13653 \*\*

PACKAGE OUTLINE. 176 LEAD TEQFP  
24.0X24.0X1.7 MM LEV176 REV\*\*

#### 4.2.3 TEQFP144

Figure 4-15: TEQFP144 (0.5 mm Pitch)

| Package Type  | Package Code |
|---------------|--------------|
| TEQFP 144 pin | LEX144       |



| SYMBOL | DIMENSION |      |      |
|--------|-----------|------|------|
|        | MIN.      | NOM. | MAX. |
| A      | —         | —    | 1.70 |
| A1     | 0.05      | —    | 0.15 |
| D      | 22.00 BSC |      |      |
| D1     | 20.00 BSC |      |      |
| D2     | 5.80 REF  |      |      |
| D3     | 4.60 REF  |      |      |
| E      | 22.00 BSC |      |      |
| E1     | 20.00 BSC |      |      |
| E2     | 5.80 REF  |      |      |
| E3     | 4.60 REF  |      |      |
| R1     | 0.08      | —    | —    |
| R2     | 0.08      | —    | 0.20 |
| θ      | 0°        | 4°   | 8°   |
| c      | 0.09      | —    | 0.20 |
| b      | 0.17      | 0.22 | 0.27 |
| L      | 0.45      | 0.60 | 0.75 |
| L1     | 1.00 REF  |      |      |
| L2     | 0.25      |      |      |
| e      | 0.50 BSC  |      |      |

#### NOTES

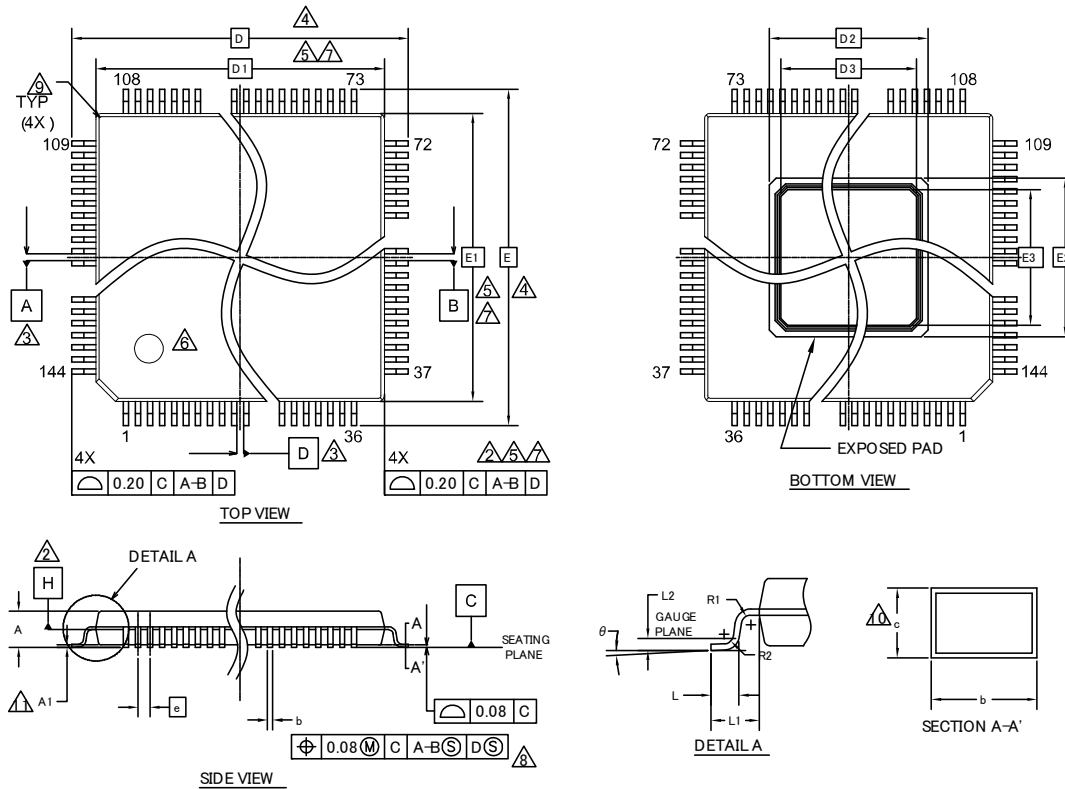
- ALL DIMENSIONS ARE IN MILLIMETERS.
- DATUM PLANE H IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
- DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.
- TO BE DETERMINED AT SEATING PLANE C.
- DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PRE SIDE. DIMENSIONS D1 AND E1 INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.
- DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
- REGARDLESS OF THE RELATIVE SIZE OF THE UPPER AND LOWER BODY SECTIONS, DIMENSIONS D1 AND E1 ARE DETERMINED AT THE LARGEST FEATURE OF THE BODY EXCLUSIVE OF MOLD FLASH AND GATE BURRS, BUT INCLUDING ANY MISMATCH BETWEEN THE UPPER AND LOWER SECTIONS OF THE MOLDER BODY.
- DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. THE DAMBAR PROTRUSION (S) SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED b MAXIMUM BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE LEAD FOOT.
- EXACT SHAPE AND SIZE OF THIS FEATURE IS OPTIONAL.
- THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.
- A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

002-13553 \*\*

PACKAGE OUTLINE, 144 LEAD TEQFP  
20.0X20.0X1.7 MM LEX144 REV\*\*

**Figure 4-16: TEQFP144 (0.4 mm Pitch)**

| Package Type  | Package Code |
|---------------|--------------|
| TEQFP 144 pin | LEK144       |



| SYMBOL | DIMENSION |      |      |
|--------|-----------|------|------|
|        | MIN.      | NOM. | MAX. |
| A      | —         | —    | 1.70 |
| A1     | 0.05      | —    | 0.15 |
| D      | 18.00     | BSC  | —    |
| D1     | 16.00     | BSC  | —    |
| D2     | 5.80      | REF  | —    |
| D3     | 4.60      | REF  | —    |
| E      | 18.00     | BSC  | —    |
| E1     | 16.00     | BSC  | —    |
| E2     | 5.80      | REF  | —    |
| E3     | 4.60      | REF  | —    |
| R1     | 0.08      | —    | —    |
| R2     | 0.08      | —    | 0.20 |
| θ      | 0°        | 4°   | 8°   |
| c      | 0.09      | —    | 0.20 |
| b      | 0.13      | 0.18 | 0.23 |
| L      | 0.45      | 0.60 | 0.75 |
| L 1    | 1.00      | REF  | —    |
| L 2    | 0.25      | —    | —    |
| e      | 0.40      | BSC  | —    |

- NOTES:
- ALL DIMENSIONS ARE IN MILLIMETERS.
  - DATUM PLANE H IS LOCATED AT THE BOTTOM OF THE MOLD PARTING LINE COINCIDENT WITH WHERE THE LEAD EXITS THE BODY.
  - DATUMS A-B AND D TO BE DETERMINED AT DATUM PLANE H.
  - TO BE DETERMINED AT SEATING PLANE C.
  - DIMENSIONS D1 AND E1 DO NOT INCLUDE MOLD PROTRUSION. ALLOWABLE PROTRUSION IS 0.25mm PRE SIDE.
  - DIMENSIONS D1 AND E1 INCLUDE MOLD MISMATCH AND ARE DETERMINED AT DATUM PLANE H.
  - DETAILS OF PIN 1 IDENTIFIER ARE OPTIONAL BUT MUST BE LOCATED WITHIN THE ZONE INDICATED.
  - REGARDLESS OF THE RELATIVE SIZE OF THE UPPER AND LOWER BODY SECTIONS, DIMENSIONS D1 AND E1 ARE DETERMINED AT THE LARGEST FEATURE OF THE BODY EXCLUSIVE OF MOLD FLASH AND GATE BURRS. BUT INCLUDING ANY MISMATCH BETWEEN THE UPPER AND LOWER SECTIONS OF THE MOLDER BODY.
  - DIMENSION b DOES NOT INCLUDE DAMBAR PROTRUSION. THE DAMBAR PROTRUSION (S) SHALL NOT CAUSE THE LEAD WIDTH TO EXCEED b MAXIMUM BY MORE THAN 0.08mm. DAMBAR CANNOT BE LOCATED ON THE LOWER RADIUS OR THE LEAD FOOT.
  - EXACT SHAPE AND SIZE OF THIS FEATURE IS OPTIONAL.
  - THESE DIMENSIONS APPLY TO THE FLAT SECTION OF THE LEAD BETWEEN 0.10mm AND 0.25mm FROM THE LEAD TIP.
  - A1 IS DEFINED AS THE DISTANCE FROM THE SEATING PLANE TO THE LOWEST POINT OF THE PACKAGE BODY.

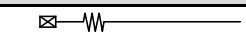
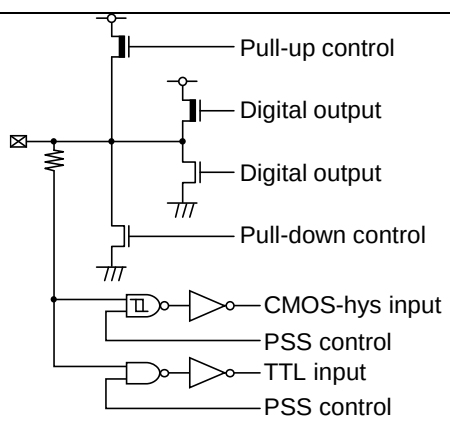
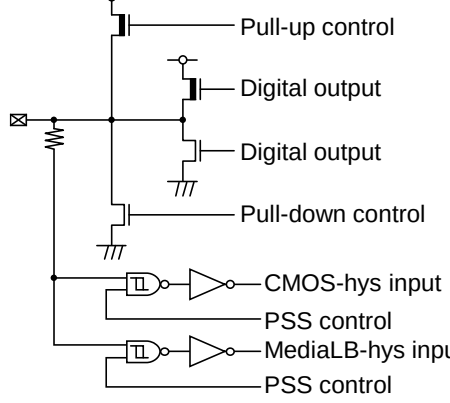
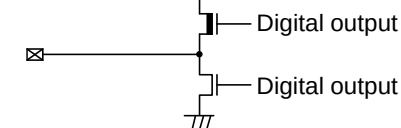
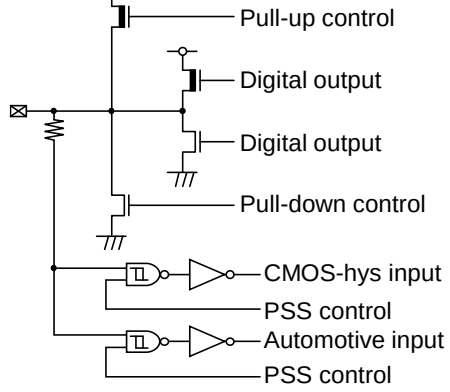
002-11502 \*\*

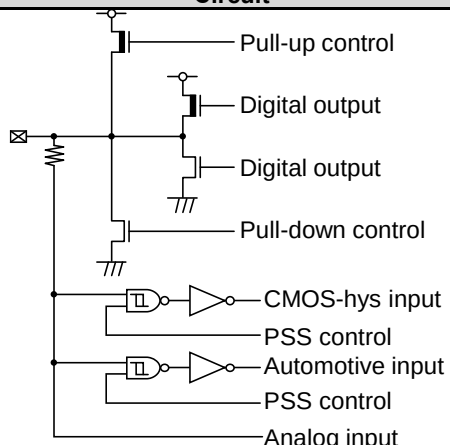
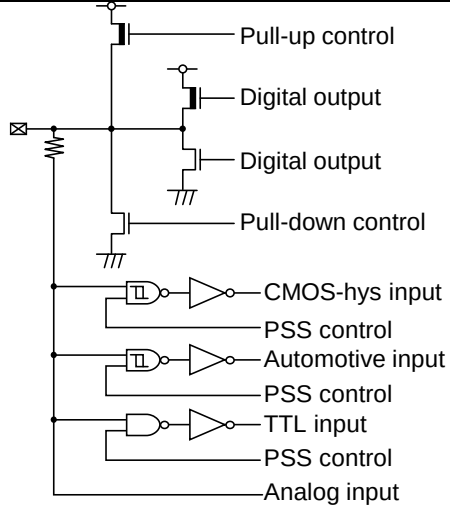
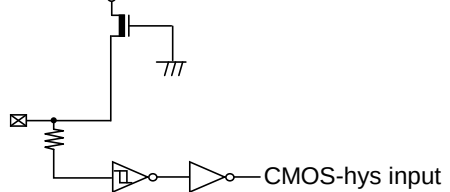
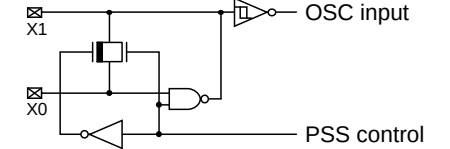
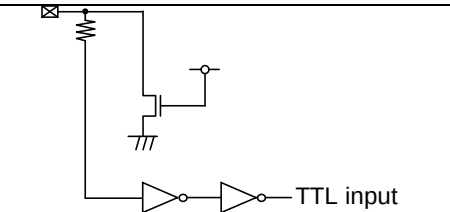
 PACKAGE OUTLINE, 144 LEAD TEQFP  
 16.0X16.0X1.7 MM LEK144 REV\*\*

## 5. IO Circuit Type

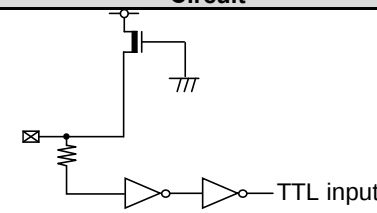
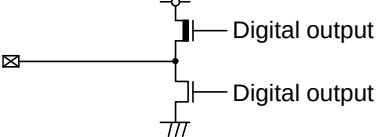
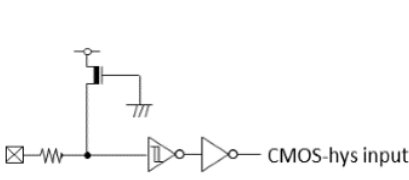
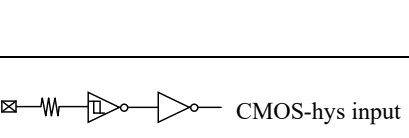
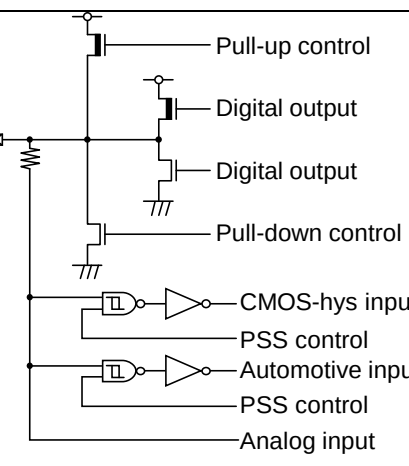
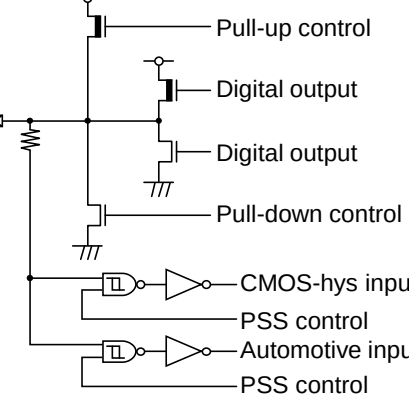
### 5.1 I/O Circuit Type

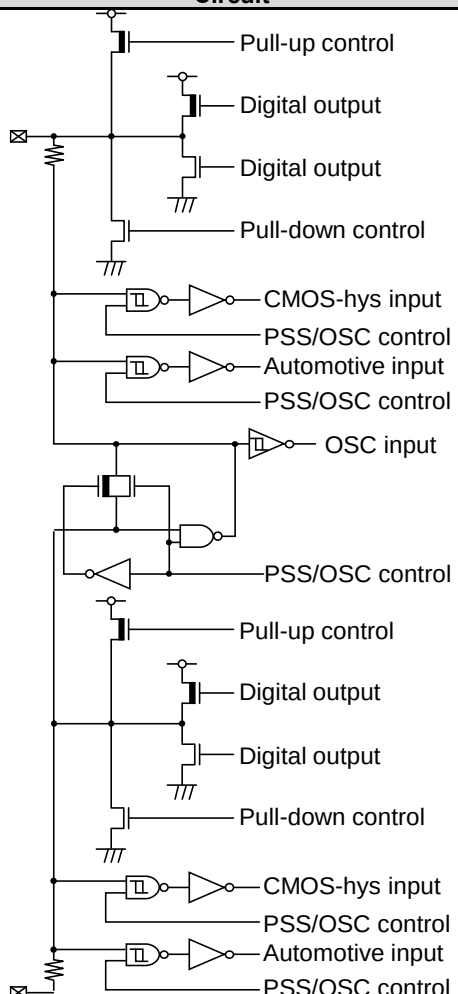
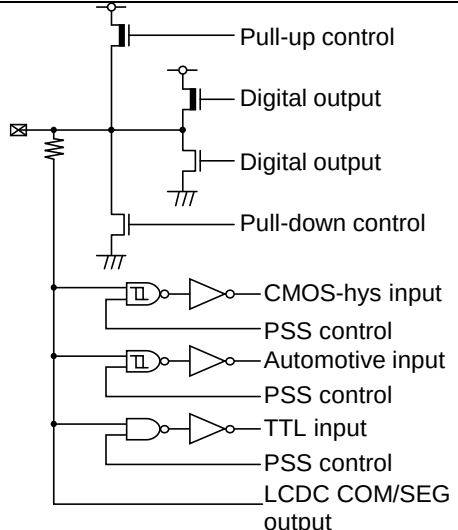
This section explains I/O circuit types.

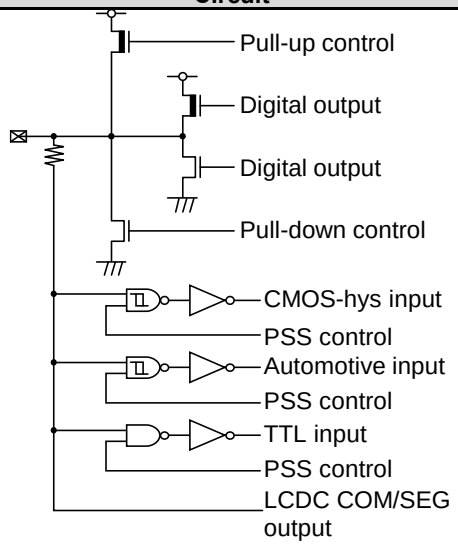
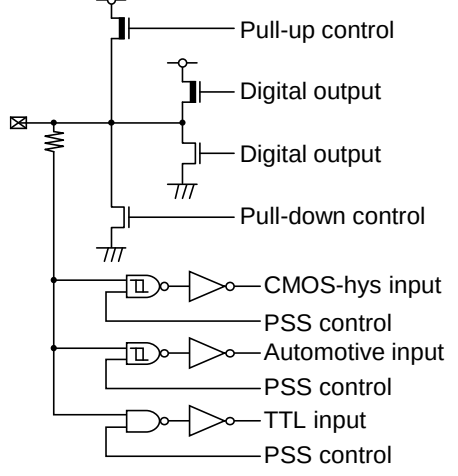
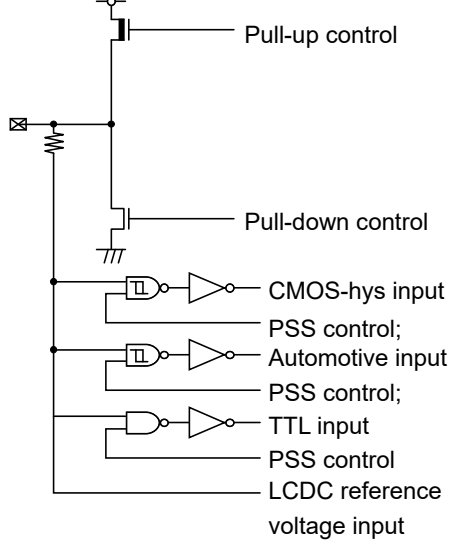
| Type | Circuit                                                                                                                                                                                                                                                             | Remarks                                                                                                                                                                                                                                                                                                        |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A    |  Analog output                                                                                                                                                                     | <ul style="list-style-type: none"> <li>- Analog output (3 V)</li> <li>- Audio DAC output</li> </ul>                                                                                                                                                                                                            |
| B    |  <p>Pull-up control</p> <p>Digital output</p> <p>Digital output</p> <p>Pull-down control</p> <p>CMOS-hys input</p> <p>PSS control</p> <p>TTL input</p> <p>PSS control</p>          | <ul style="list-style-type: none"> <li>- General-purpose I/O port</li> <li>- Output 2 mA, 5 mA, 6 mA or 15 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- TTL input</li> </ul>                      |
| C    |  <p>Pull-up control</p> <p>Digital output</p> <p>Digital output</p> <p>Pull-down control</p> <p>CMOS-hys input</p> <p>PSS control</p> <p>MediaLB-hys input</p> <p>PSS control</p> | <ul style="list-style-type: none"> <li>- General-purpose I/O port</li> <li>- Output 2 mA, 5 mA, 6 mA or 15 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- MediaLB level hysteresis input</li> </ul> |
| D    |  <p>Digital output</p> <p>Digital output</p>                                                                                                                                     | <ul style="list-style-type: none"> <li>- External 1.2 V regulator control</li> <li>- Output 2 mA</li> </ul>                                                                                                                                                                                                    |
| E    |  <p>Pull-up control</p> <p>Digital output</p> <p>Digital output</p> <p>Pull-down control</p> <p>CMOS-hys input</p> <p>PSS control</p> <p>Automotive input</p> <p>PSS control</p> | <ul style="list-style-type: none"> <li>- General-purpose I/O port</li> <li>- Output 1 mA, 2 mA or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> </ul>           |

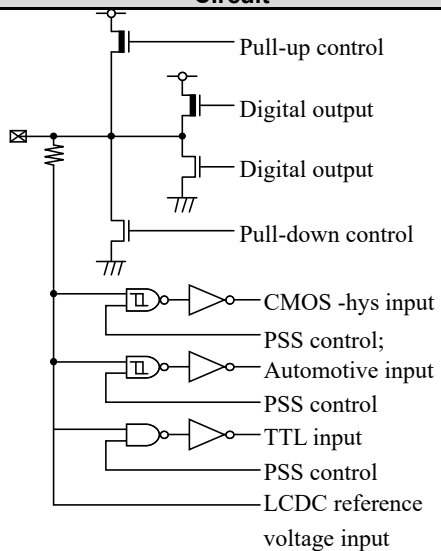
| Type | Circuit                                                                             | Remarks                                                                                                                                                                                                                                                                                                                                                 |
|------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| G    |    | <ul style="list-style-type: none"> <li>- General-purpose I/O port with analog input</li> <li>- Output 1 mA, 2 mA or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> </ul>                                  |
| H    |   | <ul style="list-style-type: none"> <li>- General-purpose I/O port with analog input</li> <li>- Output 1 mA, 2 mA, 3 mA (I²C) or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> <li>- TTL input</li> </ul> |
| I    |  | <ul style="list-style-type: none"> <li>- 50 kΩ with pull-up</li> <li>- CMOS hysteresis input</li> </ul>                                                                                                                                                                                                                                                 |
| K    |  | <ul style="list-style-type: none"> <li>- Main oscillation I/O</li> </ul>                                                                                                                                                                                                                                                                                |
| L    |  | <ul style="list-style-type: none"> <li>- JTAG_NTRST</li> <li>- 50 kΩ with pull-down</li> <li>- TTL input</li> </ul>                                                                                                                                                                                                                                     |



| Type | Circuit                                                                             | Remarks                                                                                                                                                                                                                                                                                                                       |
|------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L2   |    | <ul style="list-style-type: none"> <li>- JTAG_TDI/TMS/TCK</li> <li>- 50 kΩ with pull-up</li> <li>- TTL input</li> </ul>                                                                                                                                                                                                       |
| M    |    | <ul style="list-style-type: none"> <li>- JTAG_TDO</li> <li>- Output 5 mA</li> </ul>                                                                                                                                                                                                                                           |
| N    |    | <ul style="list-style-type: none"> <li>- RSTX input</li> <li>- 50 kΩ with pull-up</li> <li>- CMOS hysteresis input</li> </ul>                                                                                                                                                                                                 |
| O    |    | <ul style="list-style-type: none"> <li>- CMOS hysteresis input</li> </ul>                                                                                                                                                                                                                                                     |
| P    |   | <ul style="list-style-type: none"> <li>- General-purpose I/O port with analog input</li> <li>- Output 1 mA, 2 mA, 5 mA or 30 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> </ul> |
| Q    |  | <ul style="list-style-type: none"> <li>- General-purpose I/O port</li> <li>- Output 1 mA, 2 mA, 5 mA or 30 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> </ul>                   |

| Type | Circuit                                                                             | Remarks                                                                                                                                                                                                                                                                                                                                            |
|------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| R    |   | <ul style="list-style-type: none"> <li>- Sub oscillation I/O shared General-purpose I/O port</li> <li>- Output 1 mA, 2 mA or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> </ul>                    |
| S    |  | <ul style="list-style-type: none"> <li>- General-purpose I/O port with LCDC COM/SEG output</li> <li>- Output 1 mA, 2 mA or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> <li>- TTL input</li> </ul> |

| Type | Circuit                                                                                                                                                                                                                                                                                                                                                                                                                              | Remarks                                                                                                                                                                                                                                                                                                                                                   |
|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| S2   |  <p>           Pull-up control<br/>           Digital output<br/>           Digital output<br/>           Pull-down control<br/>           CMOS-hys input<br/>           PSS control<br/>           Automotive input<br/>           PSS control<br/>           TTL input<br/>           PSS control<br/>           LCDC COM/SEG output         </p> | <ul style="list-style-type: none"> <li>- General-purpose I/O port with LCDC COM/SEG output</li> <li>- Output 1 mA, 2 mA, 5 mA or 15 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> <li>- TTL input</li> </ul> |
| T    |  <p>           Pull-up control<br/>           Digital output<br/>           Digital output<br/>           Pull-down control<br/>           CMOS-hys input<br/>           PSS control<br/>           Automotive input<br/>           PSS control<br/>           TTL input<br/>           PSS control         </p>                                   | <ul style="list-style-type: none"> <li>- General-purpose I/O port</li> <li>- Output 1 mA, 2 mA or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> <li>- TTL input</li> </ul>                                 |
| U    |  <p>           Pull-up control<br/>           Pull-down control<br/>           CMOS-hys input<br/>           PSS control;<br/>           Automotive input<br/>           PSS control;<br/>           TTL input<br/>           PSS control<br/>           LCDC reference voltage input         </p>                                                | <ul style="list-style-type: none"> <li>- General-purpose input port with LCDC reference voltage input</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> <li>- TTL input</li> </ul>                                             |

| Type | Circuit                                                                           | Remarks                                                                                                                                                                                                                                                                                                                                                    |
|------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| V    |  | <ul style="list-style-type: none"> <li>- General-purpose I/O port with LCD reference voltage input</li> <li>- Output 1 mA, 2 mA or 5 mA selectable</li> <li>- 50 kΩ with pull-up resistor control</li> <li>- 50 kΩ with pull-down resistor control</li> <li>- CMOS hysteresis input</li> <li>- Automotive hysteresis input</li> <li>- TTL input</li> </ul> |

## 5.2 Note

Alphabet which shows I/O circuit type is described with corresponding pin number in pin assignment figure.

## 6. Port Description

### 6.1 Port Description List

The table shows the port function of description which is supported. The port function which is not described in the table is not supported for the product.

**Table 6-1 S6J3310 Series**

| Port Name | Description                                     | Package Pin Number                                                                |                                                                                     |                                                                                      | Remark |
|-----------|-------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------|
|           |                                                 | TEQFP<br>144                                                                      | TEQFP<br>176                                                                        | TEQFP<br>208                                                                         |        |
| VCC12     | 1.2 V external power supply pin                 | 18,<br>57,<br>58,<br>89,<br>90,<br>131                                            | 18,<br>65,<br>66,<br>113,<br>114,<br>159                                            | 24,<br>73,<br>74,<br>132,<br>133,<br>191                                             |        |
| VCC5      | 5 V external power supply pin                   | 60,<br>72,<br>92                                                                  | 68,<br>88,<br>116                                                                   | 76,<br>104,<br>135                                                                   |        |
| VCC3      | 3 V external power supply pin                   | 37,<br>46,<br>53                                                                  | 45,<br>54,<br>61                                                                    | 53,<br>62,<br>69                                                                     |        |
| VCC53     | 3 V/5 V external power supply pin               | 1,<br>16,<br>26,<br>133                                                           | 1,<br>16,<br>34,<br>161                                                             | 1,<br>22,<br>42,<br>193                                                              |        |
| VSS       | GND                                             | 17,<br>27,<br>36,<br>43,<br>45,<br>52,<br>59,<br>73,<br>86,<br>91,<br>132,<br>144 | 17,<br>35,<br>44,<br>51,<br>53,<br>60,<br>67,<br>89,<br>104,<br>115,<br>160,<br>176 | 23,<br>43,<br>52,<br>59,<br>61,<br>68,<br>75,<br>105,<br>121,<br>134,<br>192,<br>208 |        |
| AVCC3_DAC | Audio DAC power supply pin                      | 32                                                                                | 40                                                                                  | 48                                                                                   |        |
| AVCC5     | A/D converter analog power supply pin           | 94                                                                                | 118                                                                                 | 142                                                                                  |        |
| AVRH5     | A/D converter upper limit reference voltage pin | 95                                                                                | 119                                                                                 | 143                                                                                  |        |
| AVRL5     | A/D converter lower limit reference voltage pin | 96                                                                                | 120                                                                                 | 144                                                                                  |        |
| AVSS      | A/D converter GND                               | 28,<br>31,<br>35,<br>97                                                           | 36,<br>39,<br>43,<br>121                                                            | 44,<br>47,<br>51,<br>145                                                             |        |
| DVCC      | SMC large current port power supply pin         | 99,<br>109,<br>119,<br>129                                                        | 123,<br>133,<br>143,<br>153                                                         | 147,<br>157,<br>170,<br>183                                                          |        |
| DVSS      | SMC large current port GND                      | 98,<br>108,<br>118,<br>128                                                        | 122,<br>132,<br>142,<br>152                                                         | 146,<br>156,<br>169,<br>182                                                          |        |
| X1        | Main clock oscillator output pin                | 74                                                                                | 90                                                                                  | 106                                                                                  |        |
| X0        | Main clock oscillator input pin                 | 75                                                                                | 91                                                                                  | 107                                                                                  |        |
| X1A       | Sub-clock oscillator output                     | 71                                                                                | 87                                                                                  | 103                                                                                  |        |
| X0A       | Sub-clock oscillator input                      | 70                                                                                | 86                                                                                  | 102                                                                                  |        |
| NMIX      | Non-maskable interrupt input pin                | 69                                                                                | 85                                                                                  | 101                                                                                  |        |

| Port Name   | Description                                  | Package Pin Number |              |              | Remark |
|-------------|----------------------------------------------|--------------------|--------------|--------------|--------|
|             |                                              | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| RSTX        | External reset input pin                     | 82                 | 100          | 117          |        |
| PSC_1       | External Power Supply Control pin            | 83                 | 101          | 118          |        |
| MODE        | Mode Pin                                     | 84                 | 102          | 119          |        |
| C           | External capacity connection output pin      | 85                 | 103          | 120          |        |
| JTAG_NTRST  | JTAG test reset input pin                    | 76                 | 92           | 108          |        |
| JTAG_TDO    | JTAG test data output pin                    | 77                 | 93           | 109          |        |
| JTAG_TDI    | JTAG test data input pin                     | 78                 | 94           | 110          |        |
| JTAG_TCK    | JTAG test clock input pin                    | 79                 | 95           | 111          |        |
| JTAG_TMS    | JTAG test mode state input pin               | 80                 | 96           | 112          |        |
| TRACE0_0    | Trace data 0 output pin (0)                  | 63                 | 77           | 89           |        |
| TRACE1_0    | Trace data 1 output pin (0)                  | 64                 | 78           | 90           |        |
| TRACE2_0    | Trace data 2 output pin (0)                  | 65                 | 81           | 93           |        |
| TRACE3_0    | Trace data 3 output pin (0)                  | 66                 | 82           | 94           |        |
| TRACE_CLK_0 | Trace clock (0)                              | 68                 | 84           | 98           |        |
| TRACE_CTL_0 | Trace control (0)                            | 67                 | 83           | 95           |        |
| TRACE0_1    | Trace data 0 output pin (1)                  | -                  | 71           | 83           |        |
| TRACE1_1    | Trace data 1 output pin (1)                  | -                  | 72           | 84           |        |
| TRACE2_1    | Trace data 2 output pin (1)                  | -                  | 75           | 87           |        |
| TRACE3_1    | Trace data 3 output pin (1)                  | -                  | 76           | 88           |        |
| TRACE_CLK_1 | Trace clock (1)                              | -                  | 80           | 92           |        |
| TRACE_CTL_1 | Trace control (1)                            | -                  | 79           | 91           |        |
| ADTRG0_0    | A/D converter external trigger input pin (0) | 93                 | 117          | 139          |        |
| ADTRG1_0    | A/D converter external trigger input pin (0) | -                  | -            | 140          |        |
| ADTRG0_1    | A/D converter external trigger input pin (1) | 134                | 166          | 198          |        |
| ADTRG1_1    | A/D converter external trigger input pin (1) | 66                 | 82           | 94           |        |
| ADTRG1_2    | A/D converter external trigger input pin (2) | 135                | 167          | 199          |        |
| AN4         | ADC Unit0 ch.4 input pin                     | -                  | 69           | 81           |        |
| AN5         | ADC Unit0 ch.5 input pin                     | -                  | 70           | 82           |        |
| AN6         | ADC Unit0 ch.6 input pin                     | -                  | 71           | 83           |        |
| AN7         | ADC Unit0 ch.7 input pin                     | -                  | 72           | 84           |        |
| AN8         | ADC Unit0 ch.8 input pin                     | 61                 | 73           | 85           |        |
| AN9         | ADC Unit0 ch.9 input pin                     | 62                 | 74           | 86           |        |
| AN10        | ADC Unit0 ch.10 input pin                    | -                  | 75           | 87           |        |
| AN11        | ADC Unit0 ch.11 input pin                    | -                  | 76           | 88           |        |
| AN12        | ADC Unit0 ch.12 input pin                    | 63                 | 77           | 89           |        |
| AN13        | ADC Unit0 ch.13 input pin                    | 64                 | 78           | 90           |        |
| AN14        | ADC Unit0 ch.14 input pin                    | -                  | 79           | 91           |        |
| AN15        | ADC Unit0 ch.15 input pin                    | -                  | 80           | 92           |        |
| AN16        | ADC Unit0 ch.16 input pin                    | 65                 | 81           | 93           |        |
| AN17        | ADC Unit0 ch.17 input pin                    | 66                 | 82           | 94           |        |
| AN18        | ADC Unit0 ch.18 input pin                    | 67                 | 83           | 95           |        |
| AN21        | ADC Unit0 ch.21 input pin                    | 68                 | 84           | 98           |        |
| AN24        | ADC Unit0 ch.24 input pin                    | 81                 | 97           | 113          |        |
| AN25        | ADC Unit0 ch.25 input pin                    | -                  | 98           | 114          |        |
| AN26        | ADC Unit0 ch.26 input pin                    | -                  | 99           | 115          |        |
| AN28        | ADC Unit0 ch.28 input pin                    | -                  | 108          | 125          |        |
| AN29        | ADC Unit0 ch.29 input pin                    | -                  | 109          | 126          |        |
| AN30        | ADC Unit0 ch.30 input pin                    | -                  | 110          | 127          |        |
| AN31        | ADC Unit0 ch.31 input pin                    | 87                 | 111          | 128          |        |

| Port Name | Description                            | Package Pin Number |              |              | Remark |
|-----------|----------------------------------------|--------------------|--------------|--------------|--------|
|           |                                        | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| AN32      | ADC Unit1 ch.32 input pin              | 88                 | 112          | 129          |        |
| AN39      | ADC Unit1 ch.39 input pin              | 100                | 124          | 148          |        |
| AN40      | ADC Unit1 ch.40 input pin              | 101                | 125          | 149          |        |
| AN41      | ADC Unit1 ch.41 input pin              | 102                | 126          | 150          |        |
| AN42      | ADC Unit1 ch.42 input pin              | 103                | 127          | 151          |        |
| AN43      | ADC Unit1 ch.43 input pin              | 104                | 128          | 152          |        |
| AN44      | ADC Unit1 ch.44 input pin              | 105                | 129          | 153          |        |
| AN45      | ADC Unit1 ch.45 input pin              | 106                | 130          | 154          |        |
| AN46      | ADC Unit1 ch.46 input pin              | 107                | 131          | 155          |        |
| AN47      | ADC Unit1 ch.47 input pin              | 110                | 134          | 158          |        |
| AN49      | ADC Unit1 ch.49 input pin              | 111                | 135          | 160          |        |
| AN50      | ADC Unit1 ch.50 input pin              | 112                | 136          | 161          |        |
| AN51      | ADC Unit1 ch.51 input pin              | 113                | 137          | 162          |        |
| AN52      | ADC Unit1 ch.52 input pin              | 114                | 138          | 164          |        |
| AN53      | ADC Unit1 ch.53 input pin              | 115                | 139          | 165          |        |
| AN54      | ADC Unit1 ch.54 input pin              | 116                | 140          | 166          |        |
| AN55      | ADC Unit1 ch.55 input pin              | 117                | 141          | 168          |        |
| AN56      | ADC Unit1 ch.56 input pin              | 120                | 144          | 171          |        |
| AN57      | ADC Unit1 ch.57 input pin              | 121                | 145          | 173          |        |
| AN58      | ADC Unit1 ch.58 input pin              | 122                | 146          | 174          |        |
| AN59      | ADC Unit1 ch.59 input pin              | 123                | 147          | 175          |        |
| AN60      | ADC Unit1 ch.60 input pin              | 124                | 148          | 177          |        |
| AN61      | ADC Unit1 ch.61 input pin              | 125                | 149          | 178          |        |
| AN62      | ADC Unit1 ch.62 input pin              | 126                | 150          | 179          |        |
| AN63      | ADC Unit1 ch.63 input pin              | 127                | 151          | 181          |        |
| TX0_0     | CAN transmission data 0 output pin (0) | 64                 | 78           | 90           |        |
| TX1_0     | CAN transmission data 1 output pin (0) | -                  | -            | 94           |        |
| TX2_0     | CAN transmission data 2 output pin (0) | -                  | -            | 103          |        |
| TX3_0     | CAN transmission data 3 output pin (0) | 87                 | 111          | 128          |        |
| TX5_0     | CAN transmission data 5 output pin (0) | 101                | 125          | 149          |        |
| TX6_0     | CAN transmission data 6 output pin (0) | 105                | 129          | 153          |        |
| TX0_1     | CAN transmission data 0 output pin (1) | -                  | 71           | 83           |        |
| TX1_1     | CAN transmission data 1 output pin (1) | -                  | -            | 87           |        |
| TX2_1     | CAN transmission data 2 output pin (1) | -                  | -            | 92           |        |
| TX3_1     | CAN transmission data 3 output pin (1) | -                  | 99           | 115          |        |
| TX5_1     | CAN transmission data 5 output pin (1) | -                  | 107          | 124          |        |
| TX6_1     | CAN transmission data 6 output pin (1) | -                  | 110          | 127          |        |
| TX0_2     | CAN transmission data 0 output pin (2) | -                  | -            | 7            |        |
| TX3_2     | CAN transmission data 3 output pin (2) | -                  | -            | 16           |        |
| RX0_0     | CAN reception data 0 input pin (0)     | 63                 | 77           | 89           |        |
| RX1_0     | CAN reception data 1 input pin (0)     | -                  | -            | 93           |        |
| RX2_0     | CAN reception data 2 input pin (0)     | -                  | -            | 102          |        |
| RX3_0     | CAN reception data 3 input pin (0)     | 81                 | 97           | 113          |        |
| RX5_0     | CAN reception data 5 input pin (0)     | 100                | 124          | 148          |        |
| RX6_0     | CAN reception data 6 input pin (0)     | 104                | 128          | 152          |        |
| RX0_1     | CAN reception data 0 input pin (1)     | -                  | 70           | 82           |        |
| RX1_1     | CAN reception data 1 input pin (1)     | -                  | -            | 84           |        |
| RX2_1     | CAN reception data 2 input pin (1)     | -                  | -            | 91           |        |
| RX3_1     | CAN reception data 3 input pin (1)     | -                  | 98           | 114          |        |

| Port Name | Description                        | Package Pin Number |              |              | Remark |
|-----------|------------------------------------|--------------------|--------------|--------------|--------|
|           |                                    | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| RX5_1     | CAN reception data 5 input pin (1) | -                  | 106          | 123          |        |
| RX6_1     | CAN reception data 6 input pin (1) | -                  | 109          | 126          |        |
| RX0_2     | CAN reception data 0 input pin (2) | -                  | -            | 6            |        |
| RX3_2     | CAN reception data 3 input pin (2) | -                  | -            | 15           |        |
| EINT0_0   | External interrupt input pin (0)   | 137                | 169          | 201          |        |
| EINT1_0   | External interrupt input pin (0)   | 3                  | 3            | 3            |        |
| EINT2_0   | External interrupt input pin (0)   | 38                 | 46           | 54           |        |
| EINT3_0   | External interrupt input pin (0)   | 48                 | 56           | 64           |        |
| EINT4_0   | External interrupt input pin (0)   | 61                 | 73           | 85           |        |
| EINT5_0   | External interrupt input pin (0)   | 62                 | 74           | 86           |        |
| EINT6_0   | External interrupt input pin (0)   | 63                 | 77           | 89           |        |
| EINT7_0   | External interrupt input pin (0)   | 64                 | 78           | 90           |        |
| EINT8_0   | External interrupt input pin (0)   | 65                 | 81           | 93           |        |
| EINT9_0   | External interrupt input pin (0)   | 66                 | 82           | 94           |        |
| EINT10_0  | External interrupt input pin (0)   | 67                 | 83           | 95           |        |
| EINT11_0  | External interrupt input pin (0)   | 68                 | 84           | 98           |        |
| EINT12_0  | External interrupt input pin (0)   | 70                 | 86           | 102          |        |
| EINT13_0  | External interrupt input pin (0)   | 71                 | 87           | 103          |        |
| EINT14_0  | External interrupt input pin (0)   | 81                 | 97           | 113          |        |
| EINT15_0  | External interrupt input pin (0)   | 87                 | 111          | 128          |        |
| EINT16_0  | External interrupt input pin (0)   | 88                 | 112          | 129          |        |
| EINT17_0  | External interrupt input pin (0)   | 100                | 124          | 148          |        |
| EINT18_0  | External interrupt input pin (0)   | 102                | 126          | 150          |        |
| EINT19_0  | External interrupt input pin (0)   | 104                | 128          | 152          |        |
| EINT20_0  | External interrupt input pin (0)   | 106                | 130          | 154          |        |
| EINT21_0  | External interrupt input pin (0)   | 113                | 137          | 162          |        |
| EINT22_0  | External interrupt input pin (0)   | 117                | 141          | 168          |        |
| EINT23_0  | External interrupt input pin (0)   | 124                | 148          | 177          |        |
| EINT0_1   | External interrupt input pin (1)   | 2                  | 2            | 2            |        |
| EINT1_1   | External interrupt input pin (1)   | -                  | 19           | 25           |        |
| EINT2_1   | External interrupt input pin (1)   | -                  | -            | 184          |        |
| EINT3_1   | External interrupt input pin (1)   | -                  | 162          | 194          |        |
| EINT4_1   | External interrupt input pin (1)   | 4                  | 4            | 4            |        |
| EINT5_1   | External interrupt input pin (1)   | 5                  | 5            | 5            |        |
| EINT6_1   | External interrupt input pin (1)   | -                  | 70           | 82           |        |
| EINT7_1   | External interrupt input pin (1)   | -                  | -            | 6            |        |
| EINT8_1   | External interrupt input pin (1)   | -                  | 72           | 84           |        |
| EINT9_1   | External interrupt input pin (1)   | -                  | -            | 7            |        |
| EINT10_1  | External interrupt input pin (1)   | -                  | -            | 8            |        |
| EINT11_1  | External interrupt input pin (1)   | 6                  | 6            | 9            |        |
| EINT12_1  | External interrupt input pin (1)   | -                  | 79           | 91           |        |
| EINT13_1  | External interrupt input pin (1)   | 7                  | 7            | 10           |        |
| EINT14_1  | External interrupt input pin (1)   | -                  | 98           | 114          |        |
| EINT15_1  | External interrupt input pin (1)   | 8                  | 8            | 11           |        |
| EINT16_1  | External interrupt input pin (1)   | -                  | -            | 136          |        |
| EINT17_1  | External interrupt input pin (1)   | -                  | 106          | 123          |        |
| EINT18_1  | External interrupt input pin (1)   | -                  | 69           | 81           |        |
| EINT19_1  | External interrupt input pin (1)   | -                  | 109          | 126          |        |
| EINT20_1  | External interrupt input pin (1)   | -                  | 105          | 122          |        |



| Port Name | Description                      | Package Pin Number |              |              | Remark |
|-----------|----------------------------------|--------------------|--------------|--------------|--------|
|           |                                  | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| EINT21_1  | External interrupt input pin (1) | -                  | 75           | 87           |        |
| EINT22_1  | External interrupt input pin (1) | -                  | -            | 140          |        |
| EINT23_1  | External interrupt input pin (1) | 9                  | 9            | 12           |        |
| EINT0_2   | External interrupt input pin (2) | 10                 | 10           | 13           |        |
| EINT1_2   | External interrupt input pin (2) | 11                 | 11           | 14           |        |
| EINT2_2   | External interrupt input pin (2) | -                  | -            | 15           |        |
| EINT3_2   | External interrupt input pin (2) | -                  | -            | 16           |        |
| EINT4_2   | External interrupt input pin (2) | -                  | -            | 17           |        |
| EINT5_2   | External interrupt input pin (2) | 12                 | 12           | 18           |        |
| EINT6_2   | External interrupt input pin (2) | 13                 | 13           | 19           |        |
| EINT7_2   | External interrupt input pin (2) | 14                 | 14           | 20           |        |
| EINT8_2   | External interrupt input pin (2) | 15                 | 15           | 21           |        |
| EINT9_2   | External interrupt input pin (2) | -                  | 20           | 26           |        |
| EINT10_2  | External interrupt input pin (2) | -                  | 21           | 27           |        |
| EINT11_2  | External interrupt input pin (2) | -                  | 22           | 28           |        |
| EINT12_2  | External interrupt input pin (2) | -                  | 23           | 29           |        |
| EINT13_2  | External interrupt input pin (2) | -                  | -            | 30           |        |
| EINT14_2  | External interrupt input pin (2) | -                  | -            | 31           |        |
| EINT15_2  | External interrupt input pin (2) | -                  | 24           | 32           |        |
| EINT16_2  | External interrupt input pin (2) | -                  | 25           | 33           |        |
| EINT17_2  | External interrupt input pin (2) | 19                 | 26           | 34           |        |
| EINT18_2  | External interrupt input pin (2) | 20                 | 27           | 35           |        |
| EINT19_2  | External interrupt input pin (2) | 21                 | 28           | 36           |        |
| EINT20_2  | External interrupt input pin (2) | -                  | 29           | 37           |        |
| EINT21_2  | External interrupt input pin (2) | 22                 | 30           | 38           |        |
| EINT22_2  | External interrupt input pin (2) | 23                 | 31           | 39           |        |
| EINT23_2  | External interrupt input pin (2) | 24                 | 32           | 40           |        |
| EINT0_3   | External interrupt input pin (3) | 25                 | 33           | 41           |        |
| EINT1_3   | External interrupt input pin (3) | 39                 | 47           | 55           |        |
| EINT2_3   | External interrupt input pin (3) | 40                 | 48           | 56           |        |
| EINT3_3   | External interrupt input pin (3) | 41                 | 49           | 57           |        |
| EINT4_3   | External interrupt input pin (3) | 42                 | 50           | 58           |        |
| EINT5_3   | External interrupt input pin (3) | 44                 | 52           | 60           |        |
| EINT6_3   | External interrupt input pin (3) | 47                 | 55           | 63           |        |
| EINT7_3   | External interrupt input pin (3) | 49                 | 57           | 65           |        |
| EINT8_3   | External interrupt input pin (3) | 50                 | 58           | 66           |        |
| EINT9_3   | External interrupt input pin (3) | 51                 | 59           | 67           |        |
| EINT10_3  | External interrupt input pin (3) | 54                 | 62           | 70           |        |
| EINT11_3  | External interrupt input pin (3) | 55                 | 63           | 71           |        |
| EINT12_3  | External interrupt input pin (3) | 56                 | 64           | 72           |        |
| EINT13_3  | External interrupt input pin (3) | -                  | -            | 77           |        |
| EINT14_3  | External interrupt input pin (3) | -                  | -            | 78           |        |
| EINT15_3  | External interrupt input pin (3) | -                  | -            | 79           |        |
| EINT16_3  | External interrupt input pin (3) | -                  | -            | 80           |        |
| EINT17_3  | External interrupt input pin (3) | -                  | 71           | 83           |        |
| EINT18_3  | External interrupt input pin (3) | -                  | 76           | 88           |        |
| EINT19_3  | External interrupt input pin (3) | -                  | 80           | 92           |        |
| EINT20_3  | External interrupt input pin (3) | -                  | -            | 96           |        |
| EINT21_3  | External interrupt input pin (3) | -                  | -            | 97           |        |

| Port Name | Description                      | Package Pin Number |              |              | Remark |
|-----------|----------------------------------|--------------------|--------------|--------------|--------|
|           |                                  | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| EINT22_3  | External interrupt input pin (3) | -                  | -            | 99           |        |
| EINT23_3  | External interrupt input pin (3) | -                  | -            | 100          |        |
| EINT0_4   | External interrupt input pin (4) | -                  | 99           | 115          |        |
| EINT1_4   | External interrupt input pin (4) | -                  | -            | 116          |        |
| EINT2_4   | External interrupt input pin (4) | -                  | 107          | 124          |        |
| EINT3_4   | External interrupt input pin (4) | -                  | 108          | 125          |        |
| EINT4_4   | External interrupt input pin (4) | -                  | 110          | 127          |        |
| EINT5_4   | External interrupt input pin (4) | -                  | -            | 130          |        |
| EINT6_4   | External interrupt input pin (4) | -                  | -            | 131          |        |
| EINT7_4   | External interrupt input pin (4) | -                  | -            | 137          |        |
| EINT8_4   | External interrupt input pin (4) | -                  | -            | 138          |        |
| EINT9_4   | External interrupt input pin (4) | 93                 | 117          | 139          |        |
| EINT10_4  | External interrupt input pin (4) | -                  | -            | 141          |        |
| EINT11_4  | External interrupt input pin (4) | 101                | 125          | 149          |        |
| EINT12_4  | External interrupt input pin (4) | 103                | 127          | 151          |        |
| EINT13_4  | External interrupt input pin (4) | 105                | 129          | 153          |        |
| EINT14_4  | External interrupt input pin (4) | 107                | 131          | 155          |        |
| EINT15_4  | External interrupt input pin (4) | 110                | 134          | 158          |        |
| EINT16_4  | External interrupt input pin (4) | -                  | -            | 159          |        |
| EINT17_4  | External interrupt input pin (4) | 111                | 135          | 160          |        |
| EINT18_4  | External interrupt input pin (4) | 112                | 136          | 161          |        |
| EINT19_4  | External interrupt input pin (4) | -                  | -            | 163          |        |
| EINT20_4  | External interrupt input pin (4) | 114                | 138          | 164          |        |
| EINT21_4  | External interrupt input pin (4) | 115                | 139          | 165          |        |
| EINT22_4  | External interrupt input pin (4) | 116                | 140          | 166          |        |
| EINT23_4  | External interrupt input pin (4) | -                  | -            | 167          |        |
| EINT0_5   | External interrupt input pin (5) | 120                | 144          | 171          |        |
| EINT1_5   | External interrupt input pin (5) | -                  | -            | 172          |        |
| EINT2_5   | External interrupt input pin (5) | 121                | 145          | 173          |        |
| EINT3_5   | External interrupt input pin (5) | 122                | 146          | 174          |        |
| EINT4_5   | External interrupt input pin (5) | 123                | 147          | 175          |        |
| EINT5_5   | External interrupt input pin (5) | -                  | -            | 176          |        |
| EINT6_5   | External interrupt input pin (5) | 125                | 149          | 178          |        |
| EINT7_5   | External interrupt input pin (5) | 126                | 150          | 179          |        |
| EINT8_5   | External interrupt input pin (5) | -                  | -            | 180          |        |
| EINT9_5   | External interrupt input pin (5) | 127                | 151          | 181          |        |
| EINT10_5  | External interrupt input pin (5) | -                  | -            | 185          |        |
| EINT11_5  | External interrupt input pin (5) | -                  | 154          | 186          |        |
| EINT12_5  | External interrupt input pin (5) | -                  | 155          | 187          |        |
| EINT13_5  | External interrupt input pin (5) | -                  | 156          | 188          |        |
| EINT14_5  | External interrupt input pin (5) | -                  | 157          | 189          |        |
| EINT15_5  | External interrupt input pin (5) | 130                | 158          | 190          |        |
| EINT16_5  | External interrupt input pin (5) | -                  | 163          | 195          |        |
| EINT17_5  | External interrupt input pin (5) | -                  | 164          | 196          |        |
| EINT18_5  | External interrupt input pin (5) | -                  | 165          | 197          |        |
| EINT19_5  | External interrupt input pin (5) | 134                | 166          | 198          |        |
| EINT20_5  | External interrupt input pin (5) | 135                | 167          | 199          |        |
| EINT21_5  | External interrupt input pin (5) | 136                | 168          | 200          |        |
| EINT22_5  | External interrupt input pin (5) | 138                | 170          | 202          |        |

| Port Name | Description                                              | Package Pin Number |              |              | Remark |
|-----------|----------------------------------------------------------|--------------------|--------------|--------------|--------|
|           |                                                          | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| EINT23_5  | External interrupt input pin (5)                         | 139                | 171          | 203          |        |
| EINT0_6   | External interrupt input pin (6)                         | 140                | 172          | 204          |        |
| EINT1_6   | External interrupt input pin (6)                         | 141                | 173          | 205          |        |
| EINT2_6   | External interrupt input pin (6)                         | 142                | 174          | 206          |        |
| EINT3_6   | External interrupt input pin (6)                         | 143                | 175          | 207          |        |
| SCS00_0   | Multi-function serial ch.0 chip select 0 I/O pin (0)     | 64                 | 78           | 90           |        |
| SCS10_0   | Multi-function serial ch.1 chip select 0 I/O pin (0)     | 6                  | 6            | 9            |        |
| SCS11_0   | Multi-function serial ch.1 chip select 1 output pin (0)  | 7                  | 7            | 10           |        |
| SCS12_0   | Multi-function serial ch.1 chip select 2 output pin (0)  | 8                  | 8            | 11           |        |
| SCS13_0   | Multi-function serial ch.1 chip select 3 output pin (0)  | 9                  | 9            | 12           |        |
| SCS20_0   | Multi-function serial ch.2 chip select 0 I/O pin (0)     | 41                 | 49           | 57           |        |
| SCS21_0   | Multi-function serial ch.2 chip select 1 output pin (0)  | 42                 | 50           | 58           |        |
| SCS22_0   | Multi-function serial ch.2 chip select 2 output pin (0)  | 44                 | 52           | 60           |        |
| SCS23_0   | Multi-function serial ch.2 chip select 3 output pin (0)  | 47                 | 55           | 63           |        |
| SCS30_0   | Multi-function serial ch.3 chip select 0 I/O pin (0)     | 51                 | 59           | 67           |        |
| SCS31_0   | Multi-function serial ch.3 chip select 1 output pin (0)  | 54                 | 62           | 70           |        |
| SCS32_0   | Multi-function serial ch.3 chip select 2 output pin (0)  | 55                 | 63           | 71           |        |
| SCS33_0   | Multi-function serial ch.3 chip select 3 output pin (0)  | 56                 | 64           | 72           |        |
| SCS40_0   | Multi-function serial ch.4 chip select 0 I/O pin (0)     | 140                | 172          | 204          |        |
| SCS41_0   | Multi-function serial ch.4 chip select 1 output pin (0)  | 141                | 173          | 205          |        |
| SCS42_0   | Multi-function serial ch.4 chip select 2 output pin (0)  | 142                | 174          | 206          |        |
| SCS43_0   | Multi-function serial ch.4 chip select 3 output pin (0)  | 143                | 175          | 207          |        |
| SCS80_0   | Multi-function serial ch.8 chip select 0 I/O pin (0)     | 105                | 129          | 153          |        |
| SCS90_0   | Multi-function serial ch.9 chip select 0 I/O pin (0)     | 111                | 135          | 160          |        |
| SCS91_0   | Multi-function serial ch.9 chip select 1 output pin (0)  | 112                | 136          | 161          |        |
| SCS100_0  | Multi-function serial ch.10 chip select 0 I/O pin (0)    | 116                | 140          | 166          |        |
| SCS110_0  | Multi-function serial ch.11 chip select 0 I/O pin (0)    | 122                | 146          | 174          |        |
| SCS111_0  | Multi-function serial ch.11 chip select 1 output pin (0) | 123                | 147          | 175          |        |
| SCS120_0  | Multi-function serial ch.12 chip select 0 I/O pin (0)    | 127                | 151          | 181          |        |
| SCS160_0  | Multi-function serial ch.16 chip select 0 I/O pin (0)    | 70                 | 86           | 102          |        |
| SCS161_0  | Multi-function serial ch.16 chip select 1 output pin (0) | 71                 | 87           | 103          |        |
| SCS170_0  | Multi-function serial ch.17 chip select 0 I/O pin (0)    | 100                | 124          | 148          |        |
| SCS171_0  | Multi-function serial ch.17 chip select 1 output pin (0) | 101                | 125          | 149          |        |
| SCS00_1   | Multi-function serial ch.0 chip select 0 I/O pin (1)     | 9                  | 9            | 12           |        |
| SCS10_1   | Multi-function serial ch.1 chip select 0 I/O pin (1)     | -                  | 22           | 28           |        |
| SCS11_1   | Multi-function serial ch.1 chip select 1 output pin (1)  | -                  | 23           | 29           |        |
| SCS12_1   | Multi-function serial ch.1 chip select 2 output pin (1)  | -                  | 24           | 32           |        |
| SCS13_1   | Multi-function serial ch.1 chip select 3 output pin (1)  | -                  | 25           | 33           |        |
| SCS20_1   | Multi-function serial ch.2 chip select 0 I/O pin (1)     | -                  | 155          | 187          |        |
| SCS21_1   | Multi-function serial ch.2 chip select 1 output pin (1)  | -                  | 156          | 188          |        |
| SCS22_1   | Multi-function serial ch.2 chip select 2 output pin (1)  | -                  | 157          | 189          |        |
| SCS23_1   | Multi-function serial ch.2 chip select 3 output pin (1)  | 130                | 158          | 190          |        |
| SCS30_1   | Multi-function serial ch.3 chip select 0 I/O pin (1)     | -                  | 165          | 197          |        |
| SCS31_1   | Multi-function serial ch.3 chip select 1 output pin (1)  | 134                | 166          | 198          |        |
| SCS32_1   | Multi-function serial ch.3 chip select 2 output pin (1)  | 135                | 167          | 199          |        |
| SCS33_1   | Multi-function serial ch.3 chip select 3 output pin (1)  | 136                | 168          | 200          |        |
| SCS40_1   | Multi-function serial ch.4 chip select 0 I/O pin (1)     | 20                 | 27           | 35           |        |
| SCS41_1   | Multi-function serial ch.4 chip select 1 output pin (1)  | 21                 | 28           | 36           |        |
| SCS42_1   | Multi-function serial ch.4 chip select 2 output pin (1)  | -                  | 29           | 37           |        |

| Port Name | Description                                              | Package Pin Number |              |              | Remark |
|-----------|----------------------------------------------------------|--------------------|--------------|--------------|--------|
|           |                                                          | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| SCS43_1   | Multi-function serial ch.4 chip select 3 output pin (1)  | 22                 | 30           | 38           |        |
| SCS80_1   | Multi-function serial ch.8 chip select 0 I/O pin (1)     | -                  | 72           | 84           |        |
| SCS90_1   | Multi-function serial ch.9 chip select 0 I/O pin (1)     | -                  | 108          | 125          |        |
| SCS91_1   | Multi-function serial ch.9 chip select 1 output pin (1)  | -                  | 109          | 126          |        |
| SCS100_1  | Multi-function serial ch.10 chip select 0 I/O pin (1)    | -                  | 80           | 92           |        |
| SCS120_1  | Multi-function serial ch.12 chip select 0 I/O pin (1)    | -                  | 110          | 127          |        |
| SCS160_1  | Multi-function serial ch.16 chip select 0 I/O pin (1)    | -                  | -            | 141          |        |
| SCS161_1  | Multi-function serial ch.16 chip select 1 output pin (1) | -                  | -            | 140          |        |
| SCS170_1  | Multi-function serial ch.17 chip select 0 I/O pin (1)    | -                  | -            | 15           |        |
| SCS171_1  | Multi-function serial ch.17 chip select 1 output pin (1) | 12                 | 12           | 18           |        |
| SCS80_2   | Multi-function serial ch.8 chip select 0 I/O pin (2)     | 50                 | 58           | 66           |        |
| SCS90_2   | Multi-function serial ch.9 chip select 0 I/O pin (2)     | 41                 | 49           | 57           |        |
| SCS91_2   | Multi-function serial ch.9 chip select 1 output pin (2)  | 42                 | 50           | 58           |        |
| SCK0_0    | Multi-function serial ch.0 clock I/O pin (0)             | 62                 | 74           | 86           |        |
| SCK1_0    | Multi-function serial ch.1 clock I/O pin (0)             | 4                  | 4            | 4            |        |
| SCK2_0    | Multi-function serial ch.2 clock I/O pin (0)             | 39                 | 47           | 55           |        |
| SCK3_0    | Multi-function serial ch.3 clock I/O pin (0)             | 49                 | 57           | 65           |        |
| SCK4_0    | Multi-function serial ch.4 clock I/O pin (0)             | 138                | 170          | 202          |        |
| SCK8_0    | Multi-function serial ch.8 clock I/O pin (0)             | 103                | 127          | 151          |        |
| SCK9_0    | Multi-function serial ch.9 clock I/O pin (0)             | 107                | 131          | 155          |        |
| SCK10_0   | Multi-function serial ch.10 clock I/O pin (0)            | 114                | 138          | 164          |        |
| SCK11_0   | Multi-function serial ch.11 clock I/O pin (0)            | 120                | 144          | 171          |        |
| SCK12_0   | Multi-function serial ch.12 clock I/O pin (0)            | 125                | 149          | 178          |        |
| SCK16_0   | Multi-function serial ch.16 clock I/O pin (0)            | 67                 | 83           | 95           |        |
| SCK17_0   | Multi-function serial ch.17 clock I/O pin (0)            | 88                 | 112          | 129          |        |
| SCK0_1    | Multi-function serial ch.0 clock I/O pin (1)             | 8                  | 8            | 11           |        |
| SCK1_1    | Multi-function serial ch.1 clock I/O pin (1)             | -                  | 20           | 26           |        |
| SCK2_1    | Multi-function serial ch.2 clock I/O pin (1)             | -                  | -            | 185          |        |
| SCK3_1    | Multi-function serial ch.3 clock I/O pin (1)             | -                  | 163          | 195          |        |
| SCK4_1    | Multi-function serial ch.4 clock I/O pin (1)             | 19                 | 26           | 34           |        |
| SCK8_1    | Multi-function serial ch.8 clock I/O pin (1)             | -                  | 70           | 82           |        |
| SCK9_1    | Multi-function serial ch.9 clock I/O pin (1)             | -                  | 106          | 123          |        |
| SCK10_1   | Multi-function serial ch.10 clock I/O pin (1)            | -                  | 76           | 88           |        |
| SCK12_1   | Multi-function serial ch.12 clock I/O pin (1)            | 88                 | 112          | 129          |        |
| SCK16_1   | Multi-function serial ch.16 clock I/O pin (1)            | -                  | -            | 138          |        |
| SCK17_1   | Multi-function serial ch.17 clock I/O pin (1)            | -                  | -            | 16           |        |
| SCK8_2    | Multi-function serial ch.8 clock I/O pin (2)             | 48                 | 56           | 64           |        |
| SCK9_2    | Multi-function serial ch.9 clock I/O pin (2)             | 40                 | 48           | 56           |        |
| SIN0_0    | Multi-function serial ch.0 serial data input pin (0)     | 61                 | 73           | 85           |        |
| SIN1_0    | Multi-function serial ch.1 serial data input pin (0)     | 3                  | 3            | 3            |        |
| SIN2_0    | Multi-function serial ch.2 serial data input pin (0)     | 38                 | 46           | 54           |        |
| SIN3_0    | Multi-function serial ch.3 serial data input pin (0)     | 48                 | 56           | 64           |        |
| SIN4_0    | Multi-function serial ch.4 serial data input pin (0)     | 137                | 169          | 201          |        |
| SIN8_0    | Multi-function serial ch.8 serial data input pin (0)     | 102                | 126          | 150          |        |
| SIN9_0    | Multi-function serial ch.9 serial data input pin (0)     | 106                | 130          | 154          |        |
| SIN10_0   | Multi-function serial ch.10 serial data input pin (0)    | 113                | 137          | 162          |        |
| SIN11_0   | Multi-function serial ch.11 serial data input pin (0)    | 117                | 141          | 168          |        |
| SIN12_0   | Multi-function serial ch.12 serial data input pin (0)    | 124                | 148          | 177          |        |
| SIN16_0   | Multi-function serial ch.16 serial data input pin (0)    | 66                 | 82           | 94           |        |

| Port Name | Description                                            | Package Pin Number |              |              | Remark |
|-----------|--------------------------------------------------------|--------------------|--------------|--------------|--------|
|           |                                                        | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| SIN17_0   | Multi-function serial ch.17 serial data input pin (0)  | 87                 | 111          | 128          |        |
| SIN0_1    | Multi-function serial ch.0 serial data input pin (1)   | 6                  | 6            | 9            |        |
| SIN1_1    | Multi-function serial ch.1 serial data input pin (1)   | -                  | 19           | 25           |        |
| SIN2_1    | Multi-function serial ch.2 serial data input pin (1)   | -                  | -            | 184          |        |
| SIN3_1    | Multi-function serial ch.3 serial data input pin (1)   | -                  | 162          | 194          |        |
| SIN4_1    | Multi-function serial ch.4 serial data input pin (1)   | -                  | 24           | 32           |        |
| SIN8_1    | Multi-function serial ch.8 serial data input pin (1)   | -                  | 69           | 81           |        |
| SIN9_1    | Multi-function serial ch.9 serial data input pin (1)   | -                  | 105          | 122          |        |
| SIN10_1   | Multi-function serial ch.10 serial data input pin (1)  | -                  | 75           | 87           |        |
| SIN12_1   | Multi-function serial ch.12 serial data input pin (1)  | -                  | -            | 131          |        |
| SIN16_1   | Multi-function serial ch.16 serial data input pin (1)  | -                  | -            | 136          |        |
| SIN17_1   | Multi-function serial ch.17 serial data input pin (1)  | 11                 | 11           | 14           |        |
| SIN8_2    | Multi-function serial ch.8 serial data input pin (2)   | 47                 | 55           | 63           |        |
| SIN9_2    | Multi-function serial ch.9 serial data input pin (2)   | 38                 | 46           | 54           |        |
| SOT0_0    | Multi-function serial ch.0 serial data output pin (0)  | 63                 | 77           | 89           |        |
| SOT1_0    | Multi-function serial ch.1 serial data output pin (0)  | 5                  | 5            | 5            |        |
| SOT2_0    | Multi-function serial ch.2 serial data output pin (0)  | 40                 | 48           | 56           |        |
| SOT3_0    | Multi-function serial ch.3 serial data output pin (0)  | 50                 | 58           | 66           |        |
| SOT4_0    | Multi-function serial ch.4 serial data output pin (0)  | 139                | 171          | 203          |        |
| SOT8_0    | Multi-function serial ch.8 serial data output pin (0)  | 104                | 128          | 152          |        |
| SOT9_0    | Multi-function serial ch.9 serial data output pin (0)  | 110                | 134          | 158          |        |
| SOT10_0   | Multi-function serial ch.10 serial data output pin (0) | 115                | 139          | 165          |        |
| SOT11_0   | Multi-function serial ch.11 serial data output pin (0) | 121                | 145          | 173          |        |
| SOT12_0   | Multi-function serial ch.12 serial data output pin (0) | 126                | 150          | 179          |        |
| SOT16_0   | Multi-function serial ch.16 serial data output pin (0) | 68                 | 84           | 98           |        |
| SOT17_0   | Multi-function serial ch.17 serial data output pin (0) | 93                 | 117          | 139          |        |
| SOT0_1    | Multi-function serial ch.0 serial data output pin (1)  | 7                  | 7            | 10           |        |
| SOT1_1    | Multi-function serial ch.1 serial data output pin (1)  | -                  | 21           | 27           |        |
| SOT2_1    | Multi-function serial ch.2 serial data output pin (1)  | -                  | 154          | 186          |        |
| SOT3_1    | Multi-function serial ch.3 serial data output pin (1)  | -                  | 164          | 196          |        |
| SOT4_1    | Multi-function serial ch.4 serial data output pin (1)  | -                  | 25           | 33           |        |
| SOT8_1    | Multi-function serial ch.8 serial data output pin (1)  | -                  | 71           | 83           |        |
| SOT9_1    | Multi-function serial ch.9 serial data output pin (1)  | -                  | 107          | 124          |        |
| SOT10_1   | Multi-function serial ch.10 serial data output pin (1) | -                  | 79           | 91           |        |
| SOT12_1   | Multi-function serial ch.12 serial data output pin (1) | -                  | -            | 130          |        |
| SOT16_1   | Multi-function serial ch.16 serial data output pin (1) | -                  | -            | 137          |        |
| SOT17_1   | Multi-function serial ch.17 serial data output pin (1) | -                  | -            | 17           |        |
| SOT8_2    | Multi-function serial ch.8 serial data output pin (2)  | 49                 | 57           | 65           |        |
| SOT9_2    | Multi-function serial ch.9 serial data output pin (2)  | 39                 | 47           | 55           |        |
| SCL0      | I <sup>2</sup> C ch.0 clock I/O pin                    | 62                 | 74           | 86           |        |
| SCL1      | I <sup>2</sup> C ch.1 clock I/O pin                    | 4                  | 4            | 4            |        |
| SCL4      | I <sup>2</sup> C ch.4 clock I/O pin                    | 138                | 170          | 202          |        |
| SCL8      | I <sup>2</sup> C ch.8 clock I/O pin                    | 103                | 127          | 151          |        |
| SCL9      | I <sup>2</sup> C ch.9 clock I/O pin                    | 107                | 131          | 155          |        |
| SCL10     | I <sup>2</sup> C ch.10 clock I/O pin                   | 114                | 138          | 164          |        |
| SCL11     | I <sup>2</sup> C ch.11 clock I/O pin                   | 120                | 144          | 171          |        |
| SCL12     | I <sup>2</sup> C ch.12 clock I/O pin                   | 125                | 149          | 178          |        |
| SCL16     | I <sup>2</sup> C ch.16 clock I/O pin                   | 67                 | 83           | 95           |        |
| SCL17     | I <sup>2</sup> C ch.17 clock I/O pin                   | 88                 | 112          | 129          |        |

| Port Name     | Description                                | Package Pin Number |              |              | Remark |
|---------------|--------------------------------------------|--------------------|--------------|--------------|--------|
|               |                                            | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| SDA0          | I <sup>2</sup> C ch.0 serial data I/O pin  | 63                 | 77           | 89           |        |
| SDA1          | I <sup>2</sup> C ch.1 serial data I/O pin  | 5                  | 5            | 5            |        |
| SDA4          | I <sup>2</sup> C ch.4 serial data I/O pin  | 139                | 171          | 203          |        |
| SDA8          | I <sup>2</sup> C ch.8 serial data I/O pin  | 104                | 128          | 152          |        |
| SDA9          | I <sup>2</sup> C ch.9 serial data I/O pin  | 110                | 134          | 158          |        |
| SDA10         | I <sup>2</sup> C ch.10 serial data I/O pin | 115                | 139          | 165          |        |
| SDA11         | I <sup>2</sup> C ch.11 serial data I/O pin | 121                | 145          | 173          |        |
| SDA12         | I <sup>2</sup> C ch.12 serial data I/O pin | 126                | 150          | 179          |        |
| SDA16         | I <sup>2</sup> C ch.16 serial data I/O pin | 68                 | 84           | 98           |        |
| SDA17         | I <sup>2</sup> C ch.17 serial data I/O pin | 93                 | 117          | 139          |        |
| PPG0_TOUT0_0  | Base timer 0 output pin (0)                | 61                 | 73           | 85           |        |
| PPG0_TOUT2_0  | Base timer 1 output pin (0)                | 62                 | 74           | 86           |        |
| PPG1_TOUT0_0  | Base timer 2 output pin (0)                | 63                 | 77           | 89           |        |
| PPG1_TOUT2_0  | Base timer 3 output pin (0)                | 64                 | 78           | 90           |        |
| PPG2_TOUT0_0  | Base timer 4 output pin (0)                | 65                 | 81           | 93           |        |
| PPG2_TOUT2_0  | Base timer 5 output pin (0)                | 66                 | 82           | 94           |        |
| PPG3_TOUT0_0  | Base timer 6 output pin (0)                | 67                 | 83           | 95           |        |
| PPG3_TOUT2_0  | Base timer 7 output pin (0)                | 68                 | 84           | 98           |        |
| PPG4_TOUT0_0  | Base timer 8 output pin (0)                | 70                 | 86           | 102          |        |
| PPG4_TOUT2_0  | Base timer 9 output pin (0)                | 71                 | 87           | 103          |        |
| PPG5_TOUT0_0  | Base timer 10 output pin (0)               | 87                 | 111          | 128          |        |
| PPG5_TOUT2_0  | Base timer 11 output pin (0)               | 88                 | 112          | 129          |        |
| PPG6_TOUT0_0  | Base timer 12 output pin (0)               | 100                | 124          | 148          |        |
| PPG6_TOUT2_0  | Base timer 13 output pin (0)               | 101                | 125          | 149          |        |
| PPG7_TOUT0_0  | Base timer 14 output pin (0)               | 102                | 126          | 150          |        |
| PPG7_TOUT2_0  | Base timer 15 output pin (0)               | 103                | 127          | 151          |        |
| PPG8_TOUT0_0  | Base timer 16 output pin (0)               | 104                | 128          | 152          |        |
| PPG8_TOUT2_0  | Base timer 17 output pin (0)               | 105                | 129          | 153          |        |
| PPG9_TOUT0_0  | Base timer 18 output pin (0)               | 106                | 130          | 154          |        |
| PPG9_TOUT2_0  | Base timer 19 output pin (0)               | 107                | 131          | 155          |        |
| PPG10_TOUT0_0 | Base timer 20 output pin (0)               | 110                | 134          | 158          |        |
| PPG10_TOUT2_0 | Base timer 21 output pin (0)               | 111                | 135          | 160          |        |
| PPG11_TOUT0_0 | Base timer 22 output pin (0)               | 112                | 136          | 161          |        |
| PPG11_TOUT2_0 | Base timer 23 output pin (0)               | 113                | 137          | 162          |        |
| PPG12_TOUT0_0 | Base timer 24 output pin (0)               | 115                | 139          | 165          |        |
| PPG12_TOUT2_0 | Base timer 25 output pin (0)               | 116                | 140          | 166          |        |
| PPG13_TOUT0_0 | Base timer 26 output pin (0)               | 117                | 141          | 168          |        |
| PPG13_TOUT2_0 | Base timer 27 output pin (0)               | 120                | 144          | 171          |        |
| PPG14_TOUT0_0 | Base timer 28 output pin (0)               | 121                | 145          | 173          |        |
| PPG14_TOUT2_0 | Base timer 29 output pin (0)               | 122                | 146          | 174          |        |
| PPG15_TOUT0_0 | Base timer 30 output pin (0)               | 123                | 147          | 175          |        |
| PPG15_TOUT2_0 | Base timer 31 output pin (0)               | 124                | 148          | 177          |        |
| PPG0_TOUT0_1  | Base timer 0 output pin (1)                | 8                  | 8            | 11           |        |
| PPG0_TOUT2_1  | Base timer 1 output pin (1)                | 9                  | 9            | 12           |        |
| PPG1_TOUT0_1  | Base timer 2 output pin (1)                | 10                 | 10           | 13           |        |
| PPG1_TOUT2_1  | Base timer 3 output pin (1)                | 11                 | 11           | 14           |        |
| PPG2_TOUT0_1  | Base timer 4 output pin (1)                | 12                 | 12           | 18           |        |
| PPG2_TOUT2_1  | Base timer 5 output pin (1)                | 13                 | 13           | 19           |        |
| PPG3_TOUT0_1  | Base timer 6 output pin (1)                | 14                 | 14           | 20           |        |



| Port Name               | Description                                | Package Pin Number |              |              | Remark |
|-------------------------|--------------------------------------------|--------------------|--------------|--------------|--------|
|                         |                                            | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| PPG3_TOUT2_1            | Base timer 7 output pin (1)                | 15                 | 15           | 21           |        |
| PPG4_TOUT0_1            | Base timer 8 output pin (1)                | -                  | 19           | 25           |        |
| PPG4_TOUT2_1            | Base timer 9 output pin (1)                | -                  | 20           | 26           |        |
| PPG5_TOUT0_1            | Base timer 10 output pin (1)               | -                  | 21           | 27           |        |
| PPG5_TOUT2_1            | Base timer 11 output pin (1)               | -                  | 22           | 28           |        |
| PPG6_TOUT0_1            | Base timer 12 output pin (1)               | -                  | 69           | 81           |        |
| PPG6_TOUT2_1            | Base timer 13 output pin (1)               | -                  | 70           | 82           |        |
| PPG7_TOUT0_1            | Base timer 14 output pin (1)               | -                  | 71           | 83           |        |
| PPG7_TOUT2_1            | Base timer 15 output pin (1)               | -                  | 72           | 84           |        |
| PPG8_TOUT0_1            | Base timer 16 output pin (1)               | -                  | 75           | 87           |        |
| PPG8_TOUT2_1            | Base timer 17 output pin (1)               | -                  | 76           | 88           |        |
| PPG9_TOUT0_1            | Base timer 18 output pin (1)               | -                  | 79           | 91           |        |
| PPG9_TOUT2_1            | Base timer 19 output pin (1)               | -                  | 80           | 92           |        |
| PPG10_TOUT0_1           | Base timer 20 output pin (1)               | -                  | 98           | 114          |        |
| PPG10_TOUT2_1           | Base timer 21 output pin (1)               | -                  | 99           | 115          |        |
| PPG11_TOUT0_1           | Base timer 22 output pin (1)               | -                  | 105          | 122          |        |
| PPG11_TOUT2_1           | Base timer 23 output pin (1)               | -                  | 106          | 123          |        |
| PPG12_TOUT0_1           | Base timer 24 output pin (1)               | -                  | 154          | 186          |        |
| PPG12_TOUT2_1           | Base timer 25 output pin (1)               | -                  | 155          | 187          |        |
| PPG13_TOUT0_1           | Base timer 26 output pin (1)               | -                  | 156          | 188          |        |
| PPG13_TOUT2_1           | Base timer 27 output pin (1)               | -                  | 157          | 189          |        |
| PPG14_TOUT0_1           | Base timer 28 output pin (1)               | 130                | 158          | 190          |        |
| PPG14_TOUT2_1           | Base timer 29 output pin (1)               | -                  | 162          | 194          |        |
| PPG15_TOUT0_1           | Base timer 30 output pin (1)               | -                  | 163          | 195          |        |
| PPG15_TOUT2_1           | Base timer 31 output pin (1)               | -                  | 164          | 196          |        |
| PPG0/1/2/3/4/5_TIN1_0   | Base timer 0/2/4/6/8/10 input pin (0)      | 93                 | 117          | 139          |        |
| PPG6/7/8/9/10/11_TIN1_0 | Base timer 12/14/16/18/20/22 input pin (0) | 114                | 138          | 164          |        |
| PPG12/13/14/15_TIN1_0   | Base timer 24/26/28/30 input pin (0)       | 125                | 149          | 178          |        |
| PPG0/1/2/3/4/5_TIN1_1   | Base timer 0/2/4/6/8/10 input pin (1)      | -                  | 23           | 29           |        |
| PPG6/7/8/9/10/11_TIN1_1 | Base timer 12/14/16/18/20/22 input pin (1) | -                  | 107          | 124          |        |
| PPG12/13/14/15_TIN1_1   | Base timer 24/26/28/30 input pin (1)       | -                  | 165          | 197          |        |
| WOT                     | RTC overflow output pin                    | 93                 | 117          | 139          |        |
| PWM1M0                  | SMC ch.0 output pin                        | 101                | 125          | 149          |        |
| PWM1M1                  | SMC ch.1 output pin                        | 105                | 129          | 153          |        |
| PWM1M2                  | SMC ch.2 output pin                        | 111                | 135          | 160          |        |
| PWM1M3                  | SMC ch.3 output pin                        | 115                | 139          | 165          |        |
| PWM1M4                  | SMC ch.4 output pin                        | 121                | 145          | 173          |        |
| PWM1M5                  | SMC ch.5 output pin                        | 125                | 149          | 178          |        |
| PWM1P0                  | SMC ch.0 output pin                        | 100                | 124          | 148          |        |
| PWM1P1                  | SMC ch.1 output pin                        | 104                | 128          | 152          |        |
| PWM1P2                  | SMC ch.2 output pin                        | 110                | 134          | 158          |        |
| PWM1P3                  | SMC ch.3 output pin                        | 114                | 138          | 164          |        |
| PWM1P4                  | SMC ch.4 output pin                        | 120                | 144          | 171          |        |
| PWM1P5                  | SMC ch.5 output pin                        | 124                | 148          | 177          |        |
| PWM2M0                  | SMC ch.0 output pin                        | 103                | 127          | 151          |        |
| PWM2M1                  | SMC ch.1 output pin                        | 107                | 131          | 155          |        |
| PWM2M2                  | SMC ch.2 output pin                        | 113                | 137          | 162          |        |
| PWM2M3                  | SMC ch.3 output pin                        | 117                | 141          | 168          |        |
| PWM2M4                  | SMC ch.4 output pin                        | 123                | 147          | 175          |        |

| Port Name    | Description                           | Package Pin Number |              |              | Remark |
|--------------|---------------------------------------|--------------------|--------------|--------------|--------|
|              |                                       | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| PWM2M5       | SMC ch.5 output pin                   | 127                | 151          | 181          |        |
| PWM2P0       | SMC ch.0 output pin                   | 102                | 126          | 150          |        |
| PWM2P1       | SMC ch.1 output pin                   | 106                | 130          | 154          |        |
| PWM2P2       | SMC ch.2 output pin                   | 112                | 136          | 161          |        |
| PWM2P3       | SMC ch.3 output pin                   | 116                | 140          | 166          |        |
| PWM2P4       | SMC ch.4 output pin                   | 122                | 146          | 174          |        |
| PWM2P5       | SMC ch.5 output pin                   | 126                | 150          | 179          |        |
| OCU0_OTD0_0  | Output compare 0 ch.0 output pin (0)  | 61                 | 73           | 85           |        |
| OCU0_OTD1_0  | Output compare 0 ch.1 output pin (0)  | 62                 | 74           | 86           |        |
| OCU1_OTD0_0  | Output compare 1 ch.0 output pin (0)  | 65                 | 81           | 93           |        |
| OCU1_OTD1_0  | Output compare 1 ch.1 output pin (0)  | 66                 | 82           | 94           |        |
| OCU2_OTD0_0  | Output compare 2 ch.0 output pin (0)  | 67                 | 83           | 95           |        |
| OCU2_OTD1_0  | Output compare 2 ch.1 output pin (0)  | 68                 | 84           | 98           |        |
| OCU8_OTD0_0  | Output compare 8 ch.0 output pin (0)  | 70                 | 86           | 102          |        |
| OCU8_OTD1_0  | Output compare 8 ch.1 output pin (0)  | 71                 | 87           | 103          |        |
| OCU9_OTD0_0  | Output compare 9 ch.0 output pin (0)  | 81                 | 97           | 113          |        |
| OCU9_OTD1_0  | Output compare 9 ch.1 output pin (0)  | 87                 | 111          | 128          |        |
| OCU10_OTD0_0 | Output compare 10 ch.0 output pin (0) | 88                 | 112          | 129          |        |
| OCU10_OTD1_0 | Output compare 10 ch.1 output pin (0) | 93                 | 117          | 139          |        |
| OCU0_OTD0_1  | Output compare 0 ch.0 output pin (1)  | -                  | 69           | 81           |        |
| OCU0_OTD1_1  | Output compare 0 ch.1 output pin (1)  | -                  | 70           | 82           |        |
| OCU1_OTD0_1  | Output compare 1 ch.0 output pin (1)  | -                  | 71           | 83           |        |
| OCU1_OTD1_1  | Output compare 1 ch.1 output pin (1)  | -                  | 72           | 84           |        |
| OCU2_OTD0_1  | Output compare 2 ch.0 output pin (1)  | -                  | 75           | 87           |        |
| OCU2_OTD1_1  | Output compare 2 ch.1 output pin (1)  | -                  | 76           | 88           |        |
| OCU8_OTD0_1  | Output compare 8 ch.0 output pin (1)  | -                  | 79           | 91           |        |
| OCU8_OTD1_1  | Output compare 8 ch.1 output pin (1)  | -                  | 80           | 92           |        |
| OCU9_OTD0_1  | Output compare 9 ch.0 output pin (1)  | -                  | 98           | 114          |        |
| OCU9_OTD1_1  | Output compare 9 ch.1 output pin (1)  | -                  | 99           | 115          |        |
| OCU10_OTD0_1 | Output compare 10 ch.0 output pin (1) | -                  | 105          | 122          |        |
| OCU10_OTD1_1 | Output compare 10 ch.1 output pin (1) | -                  | 106          | 123          |        |
| ICU0_IN0_0   | Input Capture 0 ch.0 input pin (0)    | 61                 | 73           | 85           |        |
| ICU0_IN1_0   | Input Capture 0 ch.1 input pin (0)    | 62                 | 74           | 86           |        |
| ICU1_IN0_0   | Input Capture 1 ch.0 input pin (0)    | 63                 | 77           | 89           |        |
| ICU1_IN1_0   | Input Capture 1 ch.1 input pin (0)    | 64                 | 78           | 90           |        |
| ICU2_IN0_0   | Input Capture 2 ch.0 input pin (0)    | 65                 | 81           | 93           |        |
| ICU2_IN1_0   | Input Capture 2 ch.1 input pin (0)    | 66                 | 82           | 94           |        |
| ICU8_IN0_0   | Input Capture 8 ch.0 input pin (0)    | 67                 | 83           | 95           |        |
| ICU8_IN1_0   | Input Capture 8 ch.1 input pin (0)    | 68                 | 84           | 98           |        |
| ICU9_IN0_0   | Input Capture 9 ch.0 input pin (0)    | 70                 | 86           | 102          |        |
| ICU9_IN1_0   | Input Capture 9 ch.1 input pin (0)    | 71                 | 87           | 103          |        |
| ICU10_IN0_0  | Input Capture 10 ch.0 input pin (0)   | 87                 | 111          | 128          |        |
| ICU10_IN1_0  | Input Capture 10 ch.1 input pin (0)   | 88                 | 112          | 129          |        |
| ICU0_IN0_1   | Input Capture 0 ch.0 input pin (1)    | -                  | 69           | 81           |        |
| ICU0_IN1_1   | Input Capture 0 ch.1 input pin (1)    | -                  | 70           | 82           |        |
| ICU1_IN0_1   | Input Capture 1 ch.0 input pin (1)    | -                  | 71           | 83           |        |
| ICU1_IN1_1   | Input Capture 1 ch.1 input pin (1)    | -                  | 72           | 84           |        |
| ICU2_IN0_1   | Input Capture 2 ch.0 input pin (1)    | -                  | 75           | 87           |        |
| ICU2_IN1_1   | Input Capture 2 ch.1 input pin (1)    | -                  | 76           | 88           |        |



| Port Name   | Description                                           | Package Pin Number |              |              | Remark |
|-------------|-------------------------------------------------------|--------------------|--------------|--------------|--------|
|             |                                                       | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| ICU8_IN0_1  | Input Capture 8 ch.0 input pin (1)                    | -                  | 79           | 91           |        |
| ICU8_IN1_1  | Input Capture 8 ch.1 input pin (1)                    | -                  | 80           | 92           |        |
| ICU9_IN0_1  | Input Capture 9 ch.0 input pin (1)                    | -                  | 98           | 114          |        |
| ICU9_IN1_1  | Input Capture 9 ch.1 input pin (1)                    | -                  | 99           | 115          |        |
| ICU10_IN0_1 | Input Capture 10 ch.0 input pin (1)                   | -                  | 105          | 122          |        |
| ICU10_IN1_1 | Input Capture 10 ch.1 input pin (1)                   | -                  | 106          | 123          |        |
| SGA0_0      | Sound generator ch.0 SGA output pin (0)               | 63                 | 77           | 89           |        |
| SGA1_0      | Sound generator ch.1 SGA output pin (0)               | 65                 | 81           | 93           |        |
| SGA2_0      | Sound generator ch.2 SGA output pin (0)               | 67                 | 83           | 95           |        |
| SGA3_0      | Sound generator ch.3 SGA output pin (0)               | 81                 | 97           | 113          |        |
| SGA4_0      | Sound generator ch.4 SGA output pin (0)               | 88                 | 112          | 129          |        |
| SGA0_1      | Sound generator ch.0 SGA output pin (1)               | -                  | 69           | 81           |        |
| SGA1_1      | Sound generator ch.1 SGA output pin (1)               | -                  | 71           | 83           |        |
| SGA2_1      | Sound generator ch.2 SGA output pin (1)               | -                  | 75           | 87           |        |
| SGA3_1      | Sound generator ch.3 SGA output pin (1)               | -                  | 79           | 91           |        |
| SGA4_1      | Sound generator ch.4 SGA output pin (1)               | -                  | 98           | 114          |        |
| SGO0_0      | Sound generator ch.0 SGO output pin (0)               | 64                 | 78           | 90           |        |
| SGO1_0      | Sound generator ch.1 SGO output pin (0)               | 66                 | 82           | 94           |        |
| SGO2_0      | Sound generator ch.2 SGO output pin (0)               | 68                 | 84           | 98           |        |
| SGO3_0      | Sound generator ch.3 SGO output pin (0)               | 87                 | 111          | 128          |        |
| SGO4_0      | Sound generator ch.4 SGO output pin (0)               | 93                 | 117          | 139          |        |
| SGO0_1      | Sound generator ch.0 SGO output pin (1)               | -                  | 70           | 82           |        |
| SGO1_1      | Sound generator ch.1 SGO output pin (1)               | -                  | 72           | 84           |        |
| SGO2_1      | Sound generator ch.2 SGO output pin (1)               | -                  | 76           | 88           |        |
| SGO3_1      | Sound generator ch.3 SGO output pin (1)               | -                  | 80           | 92           |        |
| SGO4_1      | Sound generator ch.4 SGO output pin (1)               | -                  | 99           | 115          |        |
| AN0 (AL0)   | PCM PWM ch.0 output pin                               | 63                 | 77           | 89           |        |
| AN1 (AL1)   | PCM PWM ch.1 output pin                               | 67                 | 83           | 95           |        |
| AP0 (AH0)   | PCM PWM ch.0 output pin                               | 64                 | 78           | 90           |        |
| AP1 (AH1)   | PCM PWM ch.1 output pin                               | 68                 | 84           | 98           |        |
| BN0 (BL0)   | PCM PWM ch.0 output pin                               | 61                 | 73           | 85           |        |
| BN1 (BL1)   | PCM PWM ch.1 output pin                               | 65                 | 81           | 93           |        |
| BP0 (BH0)   | PCM PWM ch.0 output pin                               | 62                 | 74           | 86           |        |
| BP1 (BH1)   | PCM PWM ch.1 output pin                               | 66                 | 82           | 94           |        |
| I2S0_ECLK_0 | I2S external clock ch.0 input pin (0)                 | 12                 | 12           | 18           |        |
| I2S0_ECLK_1 | I2S external clock ch.0 input pin (1)                 | -                  | 154          | 186          |        |
| I2S1_ECLK_0 | I2S external clock ch.1 input pin (0)                 | 8                  | 8            | 11           |        |
| I2S0_SCK_0  | I2S continuous serial clock ch.0 I/O pin (0)          | 15                 | 15           | 21           |        |
| I2S0_SCK_1  | I2S continuous serial clock ch.0 I/O pin (1)          | -                  | 157          | 189          |        |
| I2S1_SCK_0  | I2S continuous serial clock ch.1 I/O pin (0)          | 11                 | 11           | 14           |        |
| I2S0_SD_0   | I2S serial data ch.0 I/O pin (0)                      | 13                 | 13           | 19           |        |
| I2S0_SD_1   | I2S serial data ch.0 I/O pin (1)                      | -                  | 155          | 187          |        |
| I2S1_SD_0   | I2S serial data ch.1 I/O pin (0)                      | 9                  | 9            | 12           |        |
| I2S0_WS_0   | I2S word select ch.0 I/O pin (0)                      | 14                 | 14           | 20           |        |
| I2S0_WS_1   | I2S word select ch.0 I/O pin (1)                      | -                  | 156          | 188          |        |
| I2S1_WS_0   | I2S word select ch.1 I/O pin (0)                      | 10                 | 10           | 13           |        |
| C_L         | Audio DAC external capacity connection output pin (L) | 34                 | 42           | 50           |        |
| C_R         | Audio DAC external capacity connection output pin (R) | 30                 | 38           | 46           |        |

| Port Name        | Description                                | Package Pin Number |              |              | Remark |
|------------------|--------------------------------------------|--------------------|--------------|--------------|--------|
|                  |                                            | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| DAC_L            | Audio DAC output pin (L)                   | 33                 | 41           | 49           |        |
| DAC_R            | Audio DAC output pin (R)                   | 29                 | 37           | 45           |        |
| FRT0/1/2/3_TEXT  | Free-run timer ch.0/1/2/3 clock input pin  | 61                 | 73           | 85           |        |
| FRT4/8/9/10_TEXT | Free-run timer ch.4/8/9/10 clock input pin | 62                 | 74           | 86           |        |
| TIN0_0           | Reload timer ch.0 event input pin (0)      | 61                 | 73           | 85           |        |
| TIN1_0           | Reload timer ch.1 event input pin (0)      | 63                 | 77           | 89           |        |
| TIN16_0          | Reload timer ch.16 event input pin (0)     | 65                 | 81           | 93           |        |
| TIN17_0          | Reload timer ch.17 event input pin (0)     | 70                 | 86           | 102          |        |
| TIN48_0          | Reload timer ch.48 event input pin (0)     | 81                 | 97           | 113          |        |
| TIN49_0          | Reload timer ch.49 event input pin (0)     | 88                 | 112          | 129          |        |
| TIN0_1           | Reload timer ch.0 event input pin (0)      | -                  | 69           | 81           |        |
| TIN1_1           | Reload timer ch.1 event input pin (1)      | -                  | 71           | 83           |        |
| TIN16_1          | Reload timer ch.16 event input pin (1)     | -                  | 75           | 87           |        |
| TIN17_1          | Reload timer ch.17 event input pin (1)     | -                  | 79           | 91           |        |
| TIN48_1          | Reload timer ch.48 event input pin (1)     | -                  | 98           | 114          |        |
| TIN49_1          | Reload timer ch.49 event input pin (1)     | -                  | 107          | 124          |        |
| TOT0_0           | Reload timer ch.0 output pin (0)           | 62                 | 74           | 86           |        |
| TOT1_0           | Reload timer ch.1 output pin (0)           | 64                 | 78           | 90           |        |
| TOT16_0          | Reload timer ch.16 output pin (0)          | 66                 | 82           | 94           |        |
| TOT17_0          | Reload timer ch.17 output pin (0)          | 71                 | 87           | 103          |        |
| TOT48_0          | Reload timer ch.48 output pin (0)          | 87                 | 111          | 128          |        |
| TOT49_0          | Reload timer ch.49 output pin (0)          | 93                 | 117          | 139          |        |
| TOT0_1           | Reload timer ch.0 output pin (1)           | -                  | 70           | 82           |        |
| TOT1_1           | Reload timer ch.1 output pin (1)           | -                  | 72           | 84           |        |
| TOT16_1          | Reload timer ch.16 output pin (1)          | -                  | 76           | 88           |        |
| TOT17_1          | Reload timer ch.17 output pin (1)          | -                  | 80           | 92           |        |
| TOT48_1          | Reload timer ch.48 output pin (1)          | -                  | 99           | 115          |        |
| TOT49_1          | Reload timer ch.49 output pin (1)          | -                  | 108          | 125          |        |
| AIN8             | Up/Down counter AIN input pin ch.8         | 61                 | 73           | 85           |        |
| AIN9             | Up/Down counter AIN input pin ch.9         | 64                 | 78           | 90           |        |
| BIN8             | Up/Down counter BIN input pin ch.8         | 62                 | 74           | 86           |        |
| BIN9             | Up/Down counter BIN input pin ch.9         | 65                 | 81           | 93           |        |
| ZIN8             | Up/Down counter ZIN input pin ch.8         | 63                 | 77           | 89           |        |
| ZIN9             | Up/Down counter ZIN input pin ch.9         | 66                 | 82           | 94           |        |
| RXD0_0           | Ethernet pin (0)                           | 47                 | 55           | 63           |        |
| RXD1_0           | Ethernet pin (0)                           | 48                 | 56           | 64           |        |
| RXD2_0           | Ethernet pin (0)                           | 49                 | 57           | 65           |        |
| RXD3_0           | Ethernet pin (0)                           | 50                 | 58           | 66           |        |
| TXD0_0           | Ethernet pin (0)                           | 39                 | 47           | 55           |        |
| TXD1_0           | Ethernet pin (0)                           | 40                 | 48           | 56           |        |
| TXD2_0           | Ethernet pin (0)                           | 41                 | 49           | 57           |        |
| TXD3_0           | Ethernet pin (0)                           | 42                 | 50           | 58           |        |
| COL_0            | Ethernet pin (0)                           | 55                 | 63           | 71           |        |
| CRS_0            | Ethernet pin (0)                           | 56                 | 64           | 72           |        |
| RXER_0           | Ethernet pin (0)                           | 23                 | 31           | 39           |        |
| RXDV_0           | Ethernet pin (0)                           | 24                 | 32           | 40           |        |
| RXCLK_0          | Ethernet pin (0)                           | 22                 | 30           | 38           |        |
| TXER_0           | Ethernet pin (0)                           | 44                 | 52           | 60           |        |
| TXEN_0           | Ethernet pin (0)                           | 38                 | 46           | 54           |        |

| Port Name  | Description                           | Package Pin Number |              |              | Remark |
|------------|---------------------------------------|--------------------|--------------|--------------|--------|
|            |                                       | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| TXCLK_0    | Ethernet pin (0)                      | 25                 | 33           | 41           |        |
| MDC_0      | Ethernet pin (0)                      | 54                 | 62           | 70           |        |
| MDIO_0     | Ethernet pin (0)                      | 51                 | 59           | 67           |        |
| RXD0_1     | Ethernet pin (1)                      | -                  | 23           | 29           |        |
| RXD1_1     | Ethernet pin (1)                      | -                  | -            | 30           |        |
| RXD2_1     | Ethernet pin (1)                      | -                  | -            | 31           |        |
| RXD3_1     | Ethernet pin (1)                      | -                  | 24           | 32           |        |
| TXD0_1     | Ethernet pin (1)                      | -                  | -            | 17           |        |
| TXD1_1     | Ethernet pin (1)                      | -                  | 19           | 25           |        |
| TXD2_1     | Ethernet pin (1)                      | -                  | 20           | 26           |        |
| TXD3_1     | Ethernet pin (1)                      | -                  | 21           | 27           |        |
| COL_1      | Ethernet pin (1)                      | 24                 | 32           | 40           |        |
| CRS_1      | Ethernet pin (1)                      | 25                 | 33           | 41           |        |
| RXER_1     | Ethernet pin (1)                      | -                  | -            | 7            |        |
| RXDV_1     | Ethernet pin (1)                      | -                  | -            | 8            |        |
| RXCLK_1    | Ethernet pin (1)                      | -                  | -            | 6            |        |
| TXER_1     | Ethernet pin (1)                      | -                  | 22           | 28           |        |
| TXEN_1     | Ethernet pin (1)                      | -                  | -            | 16           |        |
| TXCLK_1    | Ethernet pin (1)                      | -                  | -            | 15           |        |
| MDC_1      | Ethernet pin (1)                      | 23                 | 31           | 39           |        |
| MDIO_1     | Ethernet pin (1)                      | -                  | 25           | 33           |        |
| MLBCLK     | MediaLB pin                           | 54                 | 62           | 70           |        |
| MLBDAT     | MediaLB pin                           | 56                 | 64           | 72           |        |
| MLBSIG     | MediaLB pin                           | 55                 | 63           | 71           |        |
| M_SCLK0    | MCU HS-SPI clock output pin           | 44                 | 52           | 60           |        |
| M_SDATA0_0 | MCU HS-SPI0 data 0 I/O pin            | 38                 | 46           | 54           |        |
| M_SDATA0_1 | MCU HS-SPI0 data 1 I/O pin            | 40                 | 48           | 56           |        |
| M_SDATA0_2 | MCU HS-SPI0 data 2 I/O pin            | 39                 | 47           | 55           |        |
| M_SDATA0_3 | MCU HS-SPI0 data 3 I/O pin            | 42                 | 50           | 58           |        |
| M_SDATA1_0 | MCU HS-SPI1 data 0 I/O pin            | 47                 | 55           | 63           |        |
| M_SDATA1_1 | MCU HS-SPI1 data 1 I/O pin            | 49                 | 57           | 65           |        |
| M_SDATA1_2 | MCU HS-SPI1 data 2 I/O pin            | 48                 | 56           | 64           |        |
| M_SDATA1_3 | MCU HS-SPI1 data 3 I/O pin            | 51                 | 59           | 67           |        |
| M_SSEL0    | MCU HS-SPI0 select output pin         | 41                 | 49           | 57           |        |
| M_SSEL1    | MCU HS-SPI1 select output pin         | 50                 | 58           | 66           |        |
| M_CK       | MCU Hyper Bus clock output pin        | 44                 | 52           | 60           |        |
| M_CS#_1    | MCU Hyper Bus select 1 output pin     | 42                 | 50           | 58           |        |
| M_CS#_2    | MCU Hyper Bus select 2 output pin     | 54                 | 62           | 70           |        |
| M_DQ0      | MCU Hyper Bus Data 0 pin              | 41                 | 49           | 57           |        |
| M_DQ1      | MCU Hyper Bus Data 1 pin              | 40                 | 48           | 56           |        |
| M_DQ2      | MCU Hyper Bus Data 2 pin              | 39                 | 47           | 55           |        |
| M_DQ3      | MCU Hyper Bus Data 3 pin              | 38                 | 46           | 54           |        |
| M_DQ4      | MCU Hyper Bus Data 4 pin              | 48                 | 56           | 64           |        |
| M_DQ5      | MCU Hyper Bus Data 5 pin              | 49                 | 57           | 65           |        |
| M_DQ6      | MCU Hyper Bus Data 6 pin              | 50                 | 58           | 66           |        |
| M_DQ7      | MCU Hyper Bus Data 7 pin              | 51                 | 59           | 67           |        |
| M_RWDS     | MCU Hyper Bus RWDS                    | 47                 | 55           | 63           |        |
| COM0       | LCDC Segment (Duty) Common Output Pin | 15                 | 15           | 21           |        |
| COM1       | LCDC Segment (Duty) Common Output Pin | 19                 | 26           | 34           |        |

| Port Name    | Description                                     | Package Pin Number |              |              | Remark |
|--------------|-------------------------------------------------|--------------------|--------------|--------------|--------|
|              |                                                 | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| COM2         | LCDC Segment (Duty) Common Output Pin           | 20                 | 27           | 35           |        |
| COM3         | LCDC Segment (Duty) Common Output Pin           | 21                 | 28           | 36           |        |
| SEG0         | LCDC Segment (Duty) Output Pin                  | -                  | 154          | 186          |        |
| SEG1         | LCDC Segment (Duty) Output Pin                  | -                  | 155          | 187          |        |
| SEG2         | LCDC Segment (Duty) Output Pin                  | -                  | 156          | 188          |        |
| SEG3         | LCDC Segment (Duty) Output Pin                  | -                  | 157          | 189          |        |
| SEG4         | LCDC Segment (Duty) Output Pin                  | 130                | 158          | 190          |        |
| SEG5         | LCDC Segment (Duty) Output Pin                  | -                  | 162          | 194          |        |
| SEG6         | LCDC Segment (Duty) Output Pin                  | -                  | 163          | 195          |        |
| SEG7         | LCDC Segment (Duty) Output Pin                  | -                  | 164          | 196          |        |
| SEG8         | LCDC Segment (Duty) Output Pin                  | -                  | 165          | 197          |        |
| SEG9         | LCDC Segment (Duty) Output Pin                  | 134                | 166          | 198          |        |
| SEG10        | LCDC Segment (Duty) Output Pin                  | 135                | 167          | 199          |        |
| SEG11        | LCDC Segment (Duty) Output Pin                  | 136                | 168          | 200          |        |
| SEG12        | LCDC Segment (Duty) Output Pin                  | 137                | 169          | 201          |        |
| SEG13        | LCDC Segment (Duty) Output Pin                  | 138                | 170          | 202          |        |
| SEG14        | LCDC Segment (Duty) Output Pin                  | 139                | 171          | 203          |        |
| SEG15        | LCDC Segment (Duty) Output Pin                  | 140                | 172          | 204          |        |
| SEG16        | LCDC Segment (Duty) Output Pin                  | 141                | 173          | 205          |        |
| SEG17        | LCDC Segment (Duty) Output Pin                  | 142                | 174          | 206          |        |
| SEG18        | LCDC Segment (Duty) Output Pin                  | 143                | 175          | 207          |        |
| SEG19        | LCDC Segment (Duty) Output Pin                  | 2                  | 2            | 2            |        |
| SEG20        | LCDC Segment (Duty) Output Pin                  | 3                  | 3            | 3            |        |
| SEG21        | LCDC Segment (Duty) Output Pin                  | 4                  | 4            | 4            |        |
| SEG22        | LCDC Segment (Duty) Output Pin                  | 5                  | 5            | 5            |        |
| SEG23        | LCDC Segment (Duty/Static) Output Pin           | 6                  | 6            | 9            |        |
| SEG24        | LCDC Segment (Duty/Static) Output Pin           | 7                  | 7            | 10           |        |
| SEG25        | LCDC Segment (Duty/Static) Output Pin           | 8                  | 8            | 11           |        |
| SEG26        | LCDC Segment (Duty/Static) Output Pin           | 9                  | 9            | 12           |        |
| SEG27        | LCDC Segment (Duty/Static) Output Pin           | 10                 | 10           | 13           |        |
| SEG28        | LCDC Segment (Duty/Static) Output Pin           | 11                 | 11           | 14           |        |
| SEG29        | LCDC Segment (Duty/Static) Output Pin           | 12                 | 12           | 18           |        |
| SEG30        | LCDC Segment (Duty/Static) Output Pin           | 13                 | 13           | 19           |        |
| SEG31        | LCDC Segment (Duty/Static) Output Pin           | 14                 | 14           | 20           |        |
| V0           | LCDC Reference Voltage V0 Input Pin             | 22                 | 30           | 38           |        |
| V1           | LCDC Reference Voltage V1 Input Pin             | 23                 | 31           | 39           |        |
| V2           | LCDC Reference Voltage V2 Input Pin             | 24                 | 32           | 40           |        |
| V3           | LCDC Reference Voltage V3 Input Pin             | 25                 | 33           | 41           |        |
| DSP0_CLK_0   | Display 0 Clock output pin                      | 136                | 168          | 200          |        |
| DSP0_EN_0    | Display 0 Data Enable output pin                | 130                | 158          | 190          |        |
| DSP0_VSYNC_0 | Display 0 Vertical Synchronization output pin   | 135                | 167          | 199          |        |
| DSP0_HSYNC_0 | Display 0 Horizontal Synchronization output pin | 134                | 166          | 198          |        |
| DSP0_R0_0    | Display 0 RGB color output pin (0)              | 137                | 169          | 201          |        |
| DSP0_R1_0    | Display 0 RGB color output pin (0)              | 138                | 170          | 202          |        |
| DSP0_R2_0    | Display 0 RGB color output pin (0)              | 139                | 171          | 203          |        |
| DSP0_R3_0    | Display 0 RGB color output pin (0)              | 140                | 172          | 204          |        |
| DSP0_R4_0    | Display 0 RGB color output pin (0)              | 141                | 173          | 205          |        |
| DSP0_R5_0    | Display 0 RGB color output pin (0)              | 142                | 174          | 206          |        |
| DSP0_R6_0    | Display 0 RGB color output pin (0)              | 143                | 175          | 207          |        |

| Port Name         | Description                           | Package Pin Number |              |              | Remark |
|-------------------|---------------------------------------|--------------------|--------------|--------------|--------|
|                   |                                       | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| DSP0_R7_0         | Display 0 RGB color output pin (0)    | 2                  | 2            | 2            |        |
| DSP0_G0_0         | Display 0 RGB color output pin (0)    | 3                  | 3            | 3            |        |
| DSP0_G1_0         | Display 0 RGB color output pin (0)    | 4                  | 4            | 4            |        |
| DSP0_G2_0         | Display 0 RGB color output pin (0)    | 5                  | 5            | 5            |        |
| DSP0_G3_0         | Display 0 RGB color output pin (0)    | 6                  | 6            | 9            |        |
| DSP0_G4_0         | Display 0 RGB color output pin (0)    | 7                  | 7            | 10           |        |
| DSP0_G5_0         | Display 0 RGB color output pin (0)    | 8                  | 8            | 11           |        |
| DSP0_G6_0         | Display 0 RGB color output pin (0)    | 9                  | 9            | 12           |        |
| DSP0_G7_0         | Display 0 RGB color output pin (0)    | 10                 | 10           | 13           |        |
| DSP0_B0_0         | Display 0 RGB color output pin (0)    | 11                 | 11           | 14           |        |
| DSP0_B1_0         | Display 0 RGB color output pin (0)    | 12                 | 12           | 18           |        |
| DSP0_B2_0         | Display 0 RGB color output pin (0)    | 13                 | 13           | 19           |        |
| DSP0_B3_0         | Display 0 RGB color output pin (0)    | 14                 | 14           | 20           |        |
| DSP0_B4_0         | Display 0 RGB color output pin (0)    | 15                 | 15           | 21           |        |
| DSP0_B5_0         | Display 0 RGB color output pin (0)    | 19                 | 26           | 34           |        |
| DSP0_B6_0         | Display 0 RGB color output pin (0)    | 20                 | 27           | 35           |        |
| DSP0_B7_0         | Display 0 RGB color output pin (0)    | 22                 | 30           | 38           |        |
| DSP0_B7_1         | Display 0 RGB color output pin (1)    | 21                 | 28           | 36           |        |
| LCDD0             | LCD Bus IF Data I/O pin               | 139                | 171          | 203          |        |
| LCDD1             | LCD Bus IF Data I/O pin               | 140                | 172          | 204          |        |
| LCDD2             | LCD Bus IF Data I/O pin               | 141                | 173          | 205          |        |
| LCDD3             | LCD Bus IF Data I/O pin               | 142                | 174          | 206          |        |
| LCDD4             | LCD Bus IF Data I/O pin               | 143                | 175          | 207          |        |
| LCDD5             | LCD Bus IF Data I/O pin               | 2                  | 2            | 2            |        |
| LCDD6             | LCD Bus IF Data I/O pin               | 3                  | 3            | 3            |        |
| LCDD7             | LCD Bus IF Data I/O pin               | 4                  | 4            | 4            |        |
| LCDD8             | LCD Bus IF Data I/O pin               | 5                  | 5            | 5            |        |
| LCDD9             | LCD Bus IF Data I/O pin               | 6                  | 6            | 9            |        |
| LCDD10            | LCD Bus IF Data I/O pin               | 7                  | 7            | 10           |        |
| LCDD11            | LCD Bus IF Data I/O pin               | 8                  | 8            | 11           |        |
| LCDD12            | LCD Bus IF Data I/O pin               | 9                  | 9            | 12           |        |
| LCDD13            | LCD Bus IF Data I/O pin               | 10                 | 10           | 13           |        |
| LCDD14            | LCD Bus IF Data I/O pin               | 11                 | 11           | 14           |        |
| LCDD15            | LCD Bus IF Data I/O pin               | 12                 | 12           | 18           |        |
| LCDD16            | LCD Bus IF Data I/O pin               | 13                 | 13           | 19           |        |
| LCDD17            | LCD Bus IF Data I/O pin               | 14                 | 14           | 20           |        |
| CS#               | LCD Bus IF Chip Select output pin     | 15                 | 15           | 21           |        |
| WR#               | LCD Bus IF Write enable output pin    | 19                 | 26           | 34           |        |
| RD#               | LCD Bus IF Read enable output pin     | 20                 | 27           | 35           |        |
| RS                | LCD Bus IF Register Select output pin | 23                 | 31           | 39           |        |
| TE                | LCD Bus IF Tearing Effect input pin   | 25                 | 33           | 41           |        |
| RES#              | LCD Bus IF Reset Control output pin   | 24                 | 32           | 40           |        |
| ARH0_AIC0_DNCLK   | APIX output pin                       | 11                 | 11           | 14           |        |
| ARH0_AIC0_DNDATA0 | APIX output pin                       | 21                 | 28           | 36           |        |
| ARH0_AIC0_DNDATA1 | APIX output pin                       | 12                 | 12           | 18           |        |
| ARH0_AIC0_RCK     | APIX input pin                        | 23                 | 31           | 39           |        |
| ARH0_AIC0_RDA0    | APIX input pin                        | 25                 | 33           | 41           |        |
| ARH0_AIC0_RDA1    | APIX input pin                        | 24                 | 32           | 40           |        |
| ARH0_AIC0_TCKI    | APIX input pin                        | 11                 | 11           | 14           |        |

| Port Name            | Description                                                            | Package Pin Number |              |              | Remark |
|----------------------|------------------------------------------------------------------------|--------------------|--------------|--------------|--------|
|                      |                                                                        | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| ARH0_AIC0_TDA0       | APIX output pin                                                        | 21                 | 28           | 36           |        |
| ARH0_AIC0_TDA1       | APIX output pin                                                        | 12                 | 12           | 18           |        |
| ARH0_AIC0_UPCLK      | APIX input pin                                                         | 23                 | 31           | 39           |        |
| ARH0_AIC0_UPDATA0    | APIX input pin                                                         | 25                 | 33           | 41           |        |
| ARH0_AIC0_UPDATA1    | APIX input pin                                                         | 24                 | 32           | 40           |        |
| ARH0_AIC0_dbg_out_0  | APIX output pin                                                        | 14                 | 14           | 20           |        |
| ARH0_AIC0_dbg_out_1  | APIX output pin                                                        | 13                 | 13           | 19           |        |
| ARH0_AIC0_dbg_select | APIX input pin                                                         | 15                 | 15           | 21           |        |
| ARH0_AIC1_DNCLK      | APIX output pin                                                        | 3                  | 3            | 3            |        |
| ARH0_AIC1_DNDATA0    | APIX output pin                                                        | 7                  | 7            | 10           |        |
| ARH0_AIC1_DNDATA1    | APIX output pin                                                        | 4                  | 4            | 4            |        |
| ARH0_AIC1_RCK        | APIX input pin                                                         | 8                  | 8            | 11           |        |
| ARH0_AIC1_RDA0       | APIX input pin                                                         | 10                 | 10           | 13           |        |
| ARH0_AIC1_RDA1       | APIX input pin                                                         | 9                  | 9            | 12           |        |
| ARH0_AIC1_TCKI       | APIX input pin                                                         | 3                  | 3            | 3            |        |
| ARH0_AIC1_TDA0       | APIX output pin                                                        | 7                  | 7            | 10           |        |
| ARH0_AIC1_TDA1       | APIX output pin                                                        | 4                  | 4            | 4            |        |
| ARH0_AIC1_UPCLK      | APIX input pin                                                         | 8                  | 8            | 11           |        |
| ARH0_AIC1_UPDATA0    | APIX input pin                                                         | 10                 | 10           | 13           |        |
| ARH0_AIC1_UPDATA1    | APIX input pin                                                         | 9                  | 9            | 12           |        |
| ARH0_AIC1_dbg_out_0  | APIX output pin                                                        | 6                  | 6            | 9            |        |
| ARH0_AIC1_dbg_out_1  | APIX output pin                                                        | 5                  | 5            | 5            |        |
| ARH0_AIC1_dbg_select | APIX input pin                                                         | 19                 | 26           | 34           |        |
| INDICATOR0_0         | Indicator PWM output pin 0<br>(It can also obtained from INDICATOR0_1) | 70                 | 86           | 102          |        |
| INDICATOR0_1         | Indicator PWM output pin 1<br>(It can also obtained from INDICATOR0_0) | 88                 | 112          | 129          |        |
| SYSC0_CLK_0          | System clock output pin (0)                                            | 93                 | 117          | 139          |        |
| SYSC0_CLK_1          | System clock output pin (1)                                            | 87                 | 111          | 128          |        |
| MAD0                 | External Bus pin                                                       | 143                | 175          | 207          |        |
| MAD1                 | External Bus pin                                                       | 2                  | 2            | 2            |        |
| MAD2                 | External Bus pin                                                       | 3                  | 3            | 3            |        |
| MAD3                 | External Bus pin                                                       | 4                  | 4            | 4            |        |
| MAD4                 | External Bus pin                                                       | 5                  | 5            | 5            |        |
| MAD5                 | External Bus pin                                                       | 6                  | 6            | 9            |        |
| MAD6                 | External Bus pin                                                       | 7                  | 7            | 10           |        |
| MAD7                 | External Bus pin                                                       | 8                  | 8            | 11           |        |
| MAD8                 | External Bus pin                                                       | 9                  | 9            | 12           |        |
| MAD9                 | External Bus pin                                                       | 10                 | 10           | 13           |        |
| MAD10                | External Bus pin                                                       | 11                 | 11           | 14           |        |
| MAD11                | External Bus pin                                                       | 12                 | 12           | 18           |        |
| MAD12                | External Bus pin                                                       | 13                 | 13           | 19           |        |
| MAD13                | External Bus pin                                                       | 14                 | 14           | 20           |        |
| MAD14                | External Bus pin                                                       | 15                 | 15           | 21           |        |
| MAD15                | External Bus pin                                                       | -                  | 19           | 25           |        |
| MAD16                | External Bus pin                                                       | -                  | 20           | 26           |        |
| MAD17                | External Bus pin                                                       | -                  | 21           | 27           |        |
| MAD18                | External Bus pin                                                       | -                  | 22           | 28           |        |
| MAD19                | External Bus pin                                                       | -                  | 23           | 29           |        |
| MAD20                | External Bus pin                                                       | -                  | 24           | 32           |        |

| Port Name | Description                | Package Pin Number |              |              | Remark |
|-----------|----------------------------|--------------------|--------------|--------------|--------|
|           |                            | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| MAD21     | External Bus pin           | -                  | 25           | 33           |        |
| MDATA0    | External Bus pin           | 135                | 167          | 199          |        |
| MDATA1    | External Bus pin           | 136                | 168          | 200          |        |
| MDATA2    | External Bus pin           | 137                | 169          | 201          |        |
| MDATA3    | External Bus pin           | 138                | 170          | 202          |        |
| MDATA4    | External Bus pin           | 139                | 171          | 203          |        |
| MDATA5    | External Bus pin           | 140                | 172          | 204          |        |
| MDATA6    | External Bus pin           | 141                | 173          | 205          |        |
| MDATA7    | External Bus pin           | 142                | 174          | 206          |        |
| MDATA8    | External Bus pin           | -                  | 154          | 186          |        |
| MDATA9    | External Bus pin           | -                  | 155          | 187          |        |
| MDATA10   | External Bus pin           | -                  | 156          | 188          |        |
| MDATA11   | External Bus pin           | -                  | 157          | 189          |        |
| MDATA12   | External Bus pin           | -                  | 162          | 194          |        |
| MDATA13   | External Bus pin           | -                  | 163          | 195          |        |
| MDATA14   | External Bus pin           | -                  | 164          | 196          |        |
| MDATA15   | External Bus pin           | -                  | 165          | 197          |        |
| MCLK      | External Bus pin           | 21                 | 28           | 36           |        |
| MOEX      | External Bus pin           | 19                 | 26           | 34           |        |
| MWEX      | External Bus pin           | 20                 | 27           | 35           |        |
| MDQM0     | External Bus pin           | 22                 | 30           | 38           |        |
| MDQM1     | External Bus pin           | -                  | 29           | 37           |        |
| MCSX0     | External Bus pin           | 130                | 158          | 190          |        |
| MCSX1     | External Bus pin           | 134                | 166          | 198          |        |
| MCSX2     | External Bus pin           | 23                 | 31           | 39           |        |
| MCSX3     | External Bus pin           | 24                 | 32           | 40           |        |
| MRDY      | External Bus pin           | 25                 | 33           | 41           |        |
| P0_00     | General-Purpose I/O port   | 2                  | 2            | 2            |        |
| P0_01     | General-Purpose I/O port   | 3                  | 3            | 3            |        |
| P0_02     | General-Purpose I/O port   | 4                  | 4            | 4            |        |
| P0_03     | General-Purpose I/O port   | 5                  | 5            | 5            |        |
| P0_04     | General-Purpose I/O port   | 6                  | 6            | 9            |        |
| P0_05     | General-Purpose I/O port   | 7                  | 7            | 10           |        |
| P0_06     | General-Purpose I/O port   | 8                  | 8            | 11           |        |
| P0_07     | General-Purpose I/O port   | 9                  | 9            | 12           |        |
| P0_08     | General-Purpose I/O port   | 10                 | 10           | 13           |        |
| P0_09     | General-Purpose I/O port   | 11                 | 11           | 14           |        |
| P0_10     | General-Purpose I/O port   | 12                 | 12           | 18           |        |
| P0_11     | General-Purpose I/O port   | 13                 | 13           | 19           |        |
| P0_12     | General-Purpose I/O port   | 14                 | 14           | 20           |        |
| P0_13     | General-Purpose I/O port   | 15                 | 15           | 21           |        |
| P0_14     | General-Purpose I/O port   | 19                 | 26           | 34           |        |
| P0_15     | General-Purpose I/O port   | 20                 | 27           | 35           |        |
| P0_16     | General-Purpose I/O port   | 21                 | 28           | 36           |        |
| P0_17     | General-Purpose I/O port   | 22                 | 30           | 38           |        |
| P0_18     | General-Purpose I/O port   | 23                 | 31           | 39           |        |
| P0_19     | General-Purpose I/O port   | 24                 | 32           | 40           |        |
| P0_20     | General-Purpose input port | 25                 | 33           | 41           |        |
| P0_21     | General-Purpose I/O port   | 38                 | 46           | 54           |        |



| Port Name | Description              | Package Pin Number |              |              | Remark |
|-----------|--------------------------|--------------------|--------------|--------------|--------|
|           |                          | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| P0_22     | General-Purpose I/O port | 39                 | 47           | 55           |        |
| P0_23     | General-Purpose I/O port | 40                 | 48           | 56           |        |
| P0_24     | General-Purpose I/O port | 41                 | 49           | 57           |        |
| P0_25     | General-Purpose I/O port | 42                 | 50           | 58           |        |
| P0_26     | General-Purpose I/O port | 44                 | 52           | 60           |        |
| P0_27     | General-Purpose I/O port | 47                 | 55           | 63           |        |
| P0_28     | General-Purpose I/O port | 48                 | 56           | 64           |        |
| P0_29     | General-Purpose I/O port | 49                 | 57           | 65           |        |
| P0_30     | General-Purpose I/O port | 50                 | 58           | 66           |        |
| P0_31     | General-Purpose I/O port | 51                 | 59           | 67           |        |
| P1_00     | General-Purpose I/O port | 54                 | 62           | 70           |        |
| P1_01     | General-Purpose I/O port | 55                 | 63           | 71           |        |
| P1_02     | General-Purpose I/O port | 56                 | 64           | 72           |        |
| P1_03     | General-Purpose I/O port | 61                 | 73           | 85           |        |
| P1_04     | General-Purpose I/O port | 62                 | 74           | 86           |        |
| P1_05     | General-Purpose I/O port | 63                 | 77           | 89           |        |
| P1_06     | General-Purpose I/O port | 64                 | 78           | 90           |        |
| P1_07     | General-Purpose I/O port | 65                 | 81           | 93           |        |
| P1_08     | General-Purpose I/O port | 66                 | 82           | 94           |        |
| P1_09     | General-Purpose I/O port | 67                 | 83           | 95           |        |
| P1_10     | General-Purpose I/O port | 68                 | 84           | 98           |        |
| P1_11     | General-Purpose I/O port | 70                 | 86           | 102          |        |
| P1_12     | General-Purpose I/O port | 71                 | 87           | 103          |        |
| P1_13     | General-Purpose I/O port | 81                 | 97           | 113          |        |
| P1_14     | General-Purpose I/O port | 87                 | 111          | 128          |        |
| P1_15     | General-Purpose I/O port | 88                 | 112          | 129          |        |
| P1_16     | General-Purpose I/O port | 93                 | 117          | 139          |        |
| P1_17     | General-Purpose I/O port | 100                | 124          | 148          |        |
| P1_18     | General-Purpose I/O port | 101                | 125          | 149          |        |
| P1_19     | General-Purpose I/O port | 102                | 126          | 150          |        |
| P1_20     | General-Purpose I/O port | 103                | 127          | 151          |        |
| P1_21     | General-Purpose I/O port | 104                | 128          | 152          |        |
| P1_22     | General-Purpose I/O port | 105                | 129          | 153          |        |
| P1_23     | General-Purpose I/O port | 106                | 130          | 154          |        |
| P1_24     | General-Purpose I/O port | 107                | 131          | 155          |        |
| P1_25     | General-Purpose I/O port | 110                | 134          | 158          |        |
| P1_26     | General-Purpose I/O port | 111                | 135          | 160          |        |
| P1_27     | General-Purpose I/O port | 112                | 136          | 161          |        |
| P1_28     | General-Purpose I/O port | 113                | 137          | 162          |        |
| P1_29     | General-Purpose I/O port | 114                | 138          | 164          |        |
| P1_30     | General-Purpose I/O port | 115                | 139          | 165          |        |
| P1_31     | General-Purpose I/O port | 116                | 140          | 166          |        |
| P2_00     | General-Purpose I/O port | 117                | 141          | 168          |        |
| P2_01     | General-Purpose I/O port | 120                | 144          | 171          |        |
| P2_02     | General-Purpose I/O port | 121                | 145          | 173          |        |
| P2_03     | General-Purpose I/O port | 122                | 146          | 174          |        |
| P2_04     | General-Purpose I/O port | 123                | 147          | 175          |        |
| P2_05     | General-Purpose I/O port | 124                | 148          | 177          |        |
| P2_06     | General-Purpose I/O port | 125                | 149          | 178          |        |



| Port Name | Description              | Package Pin Number |              |              | Remark |
|-----------|--------------------------|--------------------|--------------|--------------|--------|
|           |                          | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| P2_07     | General-Purpose I/O port | 126                | 150          | 179          |        |
| P2_08     | General-Purpose I/O port | 127                | 151          | 181          |        |
| P2_09     | General-Purpose I/O port | 130                | 158          | 190          |        |
| P2_10     | General-Purpose I/O port | 134                | 166          | 198          |        |
| P2_11     | General-Purpose I/O port | 135                | 167          | 199          |        |
| P2_12     | General-Purpose I/O port | 136                | 168          | 200          |        |
| P2_13     | General-Purpose I/O port | 137                | 169          | 201          |        |
| P2_14     | General-Purpose I/O port | 138                | 170          | 202          |        |
| P2_15     | General-Purpose I/O port | 139                | 171          | 203          |        |
| P2_16     | General-Purpose I/O port | 140                | 172          | 204          |        |
| P2_17     | General-Purpose I/O port | 141                | 173          | 205          |        |
| P2_18     | General-Purpose I/O port | 142                | 174          | 206          |        |
| P2_19     | General-Purpose I/O port | 143                | 175          | 207          |        |
| P3_00     | General-Purpose I/O port | -                  | 19           | 25           |        |
| P3_01     | General-Purpose I/O port | -                  | 20           | 26           |        |
| P3_02     | General-Purpose I/O port | -                  | 21           | 27           |        |
| P3_03     | General-Purpose I/O port | -                  | 22           | 28           |        |
| P3_04     | General-Purpose I/O port | -                  | 23           | 29           |        |
| P3_05     | General-Purpose I/O port | -                  | 24           | 32           |        |
| P3_06     | General-Purpose I/O port | -                  | 25           | 33           |        |
| P3_07     | General-Purpose I/O port | -                  | 29           | 37           |        |
| P3_08     | General-Purpose I/O port | -                  | 69           | 81           |        |
| P3_09     | General-Purpose I/O port | -                  | 70           | 82           |        |
| P3_10     | General-Purpose I/O port | -                  | 71           | 83           |        |
| P3_11     | General-Purpose I/O port | -                  | 72           | 84           |        |
| P3_12     | General-Purpose I/O port | -                  | 75           | 87           |        |
| P3_13     | General-Purpose I/O port | -                  | 76           | 88           |        |
| P3_14     | General-Purpose I/O port | -                  | 79           | 91           |        |
| P3_15     | General-Purpose I/O port | -                  | 80           | 92           |        |
| P3_16     | General-Purpose I/O port | -                  | 98           | 114          |        |
| P3_17     | General-Purpose I/O port | -                  | 99           | 115          |        |
| P3_18     | General-Purpose I/O port | -                  | 105          | 122          |        |
| P3_19     | General-Purpose I/O port | -                  | 106          | 123          |        |
| P3_20     | General-Purpose I/O port | -                  | 107          | 124          |        |
| P3_21     | General-Purpose I/O port | -                  | 108          | 125          |        |
| P3_22     | General-Purpose I/O port | -                  | 109          | 126          |        |
| P3_23     | General-Purpose I/O port | -                  | 110          | 127          |        |
| P3_24     | General-Purpose I/O port | -                  | 154          | 186          |        |
| P3_25     | General-Purpose I/O port | -                  | 155          | 187          |        |
| P3_26     | General-Purpose I/O port | -                  | 156          | 188          |        |
| P3_27     | General-Purpose I/O port | -                  | 157          | 189          |        |
| P3_28     | General-Purpose I/O port | -                  | 162          | 194          |        |
| P3_29     | General-Purpose I/O port | -                  | 163          | 195          |        |
| P3_30     | General-Purpose I/O port | -                  | 164          | 196          |        |
| P3_31     | General-Purpose I/O port | -                  | 165          | 197          |        |
| P4_00     | General-Purpose I/O port | -                  | -            | 6            |        |
| P4_01     | General-Purpose I/O port | -                  | -            | 7            |        |
| P4_02     | General-Purpose I/O port | -                  | -            | 8            |        |
| P4_03     | General-Purpose I/O port | -                  | -            | 15           |        |

| Port Name | Description              | Package Pin Number |              |              | Remark |
|-----------|--------------------------|--------------------|--------------|--------------|--------|
|           |                          | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
| P4_04     | General-Purpose I/O port | -                  | -            | 16           |        |
| P4_05     | General-Purpose I/O port | -                  | -            | 17           |        |
| P4_06     | General-Purpose I/O port | -                  | -            | 30           |        |
| P4_07     | General-Purpose I/O port | -                  | -            | 31           |        |
| P4_08     | General-Purpose I/O port | -                  | -            | 77           |        |
| P4_09     | General-Purpose I/O port | -                  | -            | 78           |        |
| P4_10     | General-Purpose I/O port | -                  | -            | 79           |        |
| P4_11     | General-Purpose I/O port | -                  | -            | 80           |        |
| P4_12     | General-Purpose I/O port | -                  | -            | 96           |        |
| P4_13     | General-Purpose I/O port | -                  | -            | 97           |        |
| P4_14     | General-Purpose I/O port | -                  | -            | 99           |        |
| P4_15     | General-Purpose I/O port | -                  | -            | 100          |        |
| P4_16     | General-Purpose I/O port | -                  | -            | 116          |        |
| P4_17     | General-Purpose I/O port | -                  | -            | 130          |        |
| P4_18     | General-Purpose I/O port | -                  | -            | 131          |        |
| P4_19     | General-Purpose I/O port | -                  | -            | 136          |        |
| P4_20     | General-Purpose I/O port | -                  | -            | 137          |        |
| P4_21     | General-Purpose I/O port | -                  | -            | 138          |        |
| P4_22     | General-Purpose I/O port | -                  | -            | 140          |        |
| P4_23     | General-Purpose I/O port | -                  | -            | 141          |        |
| P4_24     | General-Purpose I/O port | -                  | -            | 159          |        |
| P4_25     | General-Purpose I/O port | -                  | -            | 163          |        |
| P4_26     | General-Purpose I/O port | -                  | -            | 167          |        |
| P4_27     | General-Purpose I/O port | -                  | -            | 172          |        |
| P4_28     | General-Purpose I/O port | -                  | -            | 176          |        |
| P4_29     | General-Purpose I/O port | -                  | -            | 180          |        |
| P4_30     | General-Purpose I/O port | -                  | -            | 184          |        |
| P4_31     | General-Purpose I/O port | -                  | -            | 185          |        |

## 6.2 Remark

### Notes:

- The port description list shows the port function of description which is mounted and supported on the product. The function which is not described in this table is not supported and assured.
- See the function list of the product as well.

## 7. Port Configuration

### 7.1 Resource Input Configuration Module

The resource input configuration module (RIC) is a function to select input from an external or output from another internal resource as resource input. A resource which supports either a port input relocation or a resource inputs from the other resource has its RIC\_RESIN register to configure resource input configuration. The Resource which are available through only one port does not have the multiplexer implemented i.e. No RIC\_RESIN register.

#### 7.1.1 RIC (S6J3310)

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|----------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |          |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN000<br>(0x0000) | SIN16    | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_08                               | P4_19                              | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN001<br>(0x0002) | SCK16    | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_09                               | P4_21                              | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN002<br>(0x0004) | SCL16    | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN003<br>(0x0006) | SDA16    | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                   |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN004<br>(0x0008) | MFS16_T<br>RIGGER | RESSEL<br>(0-7)                      | TOT48                               | TOT49                              | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN005<br>(0x000A) | SCS16             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_11                               | P4_23                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN007<br>(0x000E) | SIN17             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_14                               | P0_09                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN008<br>(0x0010) | SCK17             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_15                               | P4_04                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN009<br>(0x0012) | SCL17             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                   |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN010<br>(0x0014) | SDA17             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN011<br>(0x0016) | MFS17_T<br>RIGGER | RESSEL<br>(0-7)                      | TOT48                               | TOT49                              | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN012<br>(0x0018) | SCS17             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_17                               | P4_03                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN021<br>(0x002A) | SIN0              | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_03                               | P0_04                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN022<br>(0x002C) | SCK0              | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_04                               | P0_06                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                  |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN023<br>(0x002E) | SCL0             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN024<br>(0x0030) | SDA0             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN025<br>(0x0032) | MFS0_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT0                                | TOT1                               | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN026<br>(0x0034) | SCS0             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P1_06                               | P0_07                              | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN028<br>(0x0038) | SIN1             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_01                               | P3_00                              | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                  |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN029<br>(0x003A) | SCK1             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_02                               | P3_01                              | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN030<br>(0x003C) | SCL1             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN031<br>(0x003E) | SDA1             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN032<br>(0x0040) | MFS1_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT0                                | TOT1                               | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN033<br>(0x0042) | SCS1             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_04                               | P3_03                              | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |    |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|---------------------------|-------|----|----|----|----|----|----|
|                              |                  |                                      | 0                         | 1     | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                         | 9     | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN035<br>(0x0046) | SIN2             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_21                     | P4_30 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN036<br>(0x0048) | SCK2             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_22                     | P4_31 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN039<br>(0x004E) | MFS2_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT0                      | TOT1  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN040<br>(0x0050) | SCS2             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_24                     | P3_25 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |



| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |    |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|---------------------------|-------|----|----|----|----|----|----|
|                              |                  |                                      | 0                         | 1     | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                         | 9     | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN042<br>(0x0054) | SIN3             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_28                     | P3_28 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN043<br>(0x0056) | SCK3             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_29                     | P3_29 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN046<br>(0x005C) | MFS3_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT0                      | TOT1  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN047<br>(0x005E) | SCS3             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P0_31                     | P3_31 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN049<br>(0x0062) | SIN4             | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P2_13                     | P3_05 | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                  |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN050<br>(0x0064) | SCK4             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P2_14                               | P0_14                              | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN051<br>(0x0066) | SCL4             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN052<br>(0x0068) | SDA4             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN053<br>(0x006A) | MFS4_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT0                                | TOT1                               | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN054<br>(0x006C) | SCS4             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P2_16                               | P0_15                              | -  | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |       |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|-------------------------------------|------------------------------------|-------|----|----|----|----|----|
|                              |                  |                                      | 0                                   | 1                                  | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                                   | 9                                  | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN077<br>(0x009A) | SIN8             | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P1_19                               | P3_08                              | P0_27 | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN078<br>(0x009C) | SCK8             | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P1_20                               | P3_09                              | P0_28 | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN079<br>(0x009E) | SCL8             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN080<br>(0x00A0) | SDA8             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN081<br>(0x00A2) | MFS8_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT16                               | TOT17                              | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |       |    |    |    |    |    |
|------------------------------|----------|--------------------------------------|-------------------------------------|------------------------------------|-------|----|----|----|----|----|
|                              |          |                                      | 0                                   | 1                                  | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                                   | 9                                  | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN082<br>(0x00A4) | SCS8     | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_22                               | P3_11                              | P0_30 | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN084<br>(0x00A8) | SIN9     | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_23                               | P3_18                              | P0_21 | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN085<br>(0x00AA) | SCK9     | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_24                               | P3_19                              | P0_23 | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN086<br>(0x00AC) | SCL9     | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN087<br>(0x00AE) | SDA9     | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |       |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|-------------------------------------|------------------------------------|-------|----|----|----|----|----|
|                              |                  |                                      | 0                                   | 1                                  | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                                   | 9                                  | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN088<br>(0x00B0) | MFS9_TR<br>IGGER | RESSEL<br>(0-7)                      | TOT16                               | TOT17                              | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN089<br>(0x00B2) | SCS9             | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P1_26                               | P3_21                              | P0_24 | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN091<br>(0x00B6) | SIN10            | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P1_28                               | P3_12                              | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN092<br>(0x00B8) | SCK10            | RESSEL<br>(0-7)                      | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | P1_29                               | P3_13                              | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN093<br>(0x00BA) | SCL10            | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -     | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                                   | -                                  | -     | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                                   | -                                  | -     | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                   |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN094<br>(0x00BC) | SDA10             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN095<br>(0x00BE) | MFS10_T<br>RIGGER | RESSEL<br>(0-7)                      | TOT16                               | TOT17                              | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN096<br>(0x00C0) | SCS10             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_31                               | P3_15                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN100<br>(0x00C8) | SCL11             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                   |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN101<br>(0x00CA) | SDA11             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN102<br>(0x00CC) | MFS11_T<br>RIGGER | RESSEL<br>(0-7)                      | TOT16                               | TOT17                              | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN105<br>(0x00D2) | SIN12             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P2_05                               | P4_18                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN106<br>(0x00D4) | SCK12             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P2_06                               | P1_15                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN107<br>(0x00D6) | SCL12             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input           |                                    |    |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|-------------------------------------|------------------------------------|----|----|----|----|----|----|
|                              |                   |                                      | 0                                   | 1                                  | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                                   | 9                                  | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN108<br>(0x00D8) | SDA12             | RESSEL<br>(0-7)                      | 80 ns<br>noise<br>filter<br>disable | 80 ns<br>noise<br>filter<br>enable | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN109<br>(0x00DA) | MFS12_T<br>RIGGER | RESSEL<br>(0-7)                      | TOT16                               | TOT17                              | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN110<br>(0x00DC) | SCS12             | RESSEL<br>(0-7)                      | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P2_08                               | P3_23                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN133<br>(0x010A) | RX5               | RESSEL<br>(0-7)                      | PORT_<br>PIN                        | MCAN5<br>_PIN_A<br>ND_TX           | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_17                               | P3_19                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN134<br>(0x010C) | RX6               | RESSEL<br>(0-7)                      | PORT_<br>PIN                        | MCAN6<br>_PIN_A<br>ND_TX           | -  | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                                   | -                                  | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_21                               | P3_22                              | -  | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                                   | -                                  | -  | -  | -  | -  | -  | -  |



| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                          |       |    |    |    |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|--------------------------|-------|----|----|----|----|----|
|                              |          |                                      | 0                         | 1                        | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                         | 9                        | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN136<br>(0x0110) | RX0      | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MCAN0<br>_PIN_A<br>ND_TX | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -                        | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_05                     | P3_09                    | P4_00 | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -                        | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN137<br>(0x0112) | RX1      | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MCAN1<br>_PIN_A<br>ND_TX | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -                        | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_07                     | P3_11                    | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -                        | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN138<br>(0x0114) | RX2      | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MCAN2<br>_PIN_A<br>ND_TX | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -                        | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_11                     | P3_14                    | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -                        | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN139<br>(0x0116) | RX3      | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MCAN3<br>_PIN_A<br>ND_TX | -     | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -                        | -     | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_13                     | P3_16                    | P4_03 | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -                        | -     | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                 |    |                |    |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|-----------------|----|----------------|----|----|----|
|                              |          |                                      | 0                         | 1     | 2               | 3  | 4              | 5  | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10              | 11 | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN141<br>(0x011A) | TIN48    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT49 | RLT49_<br>UFSET | -  | -              | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_13                     | P3_16 | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -  | -              | -  | -  | -  |
| RIC_RE<br>SIN142<br>(0x011C) | TIN49    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT48 | RLT48_<br>UFSET | -  | -              | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_15                     | P3_20 | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -  | -              | -  | -  | -  |
| RIC_RE<br>SIN144<br>(0x0120) | TIN0     | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT1  | RLT1_U<br>FSET  | -  | PPG0_T<br>OUT0 | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_03                     | P3_08 | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -  | -              | -  | -  | -  |
| RIC_RE<br>SIN145<br>(0x0122) | TIN1     | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET  | -  | PPG1_T<br>OUT0 | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_05                     | P3_10 | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -  | -              | -  | -  | -  |
| RIC_RE<br>SIN160<br>(0x0140) | TIN16    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT17 | RLT17_<br>UFSET | -  | PPG6_T<br>OUT0 | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_07                     | P3_12 | -               | -  | -              | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -  | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                 |       |                |       |       |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|-----------------|-------|----------------|-------|-------|----|
|                              |          |                                      | 0                         | 1     | 2               | 3     | 4              | 5     | 6     | 7  |
|                              |          |                                      | 8                         | 9     | 10              | 11    | 12             | 13    | 14    | 15 |
| RIC_RE<br>SIN161<br>(0x0142) | TIN17    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT16 | RLT16_<br>UFSET | -     | PPG7_T<br>OUT0 | -     | -     | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_11                     | P3_14 | -               | -     | -              | -     | -     | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -     | -              | -     | -     | -  |
| RIC_RE<br>SIN192<br>(0x0180) | EINT0    | RESSEL<br>(0-7)                      | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | PORTSE<br>L (0-7)                    | P2_13                     | P0_00 | P0_08           | P0_20 | P3_17          | P2_01 | P2_16 | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -     | -              | -     | -     | -  |
| RIC_RE<br>SIN193<br>(0x0182) | EINT1    | RESSEL<br>(0-7)                      | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_01                     | P3_00 | P0_09           | P0_22 | P4_16          | P4_27 | P2_17 | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -     | -              | -     | -     | -  |
| RIC_RE<br>SIN194<br>(0x0184) | EINT2    | RESSEL<br>(0-7)                      | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_21                     | P4_30 | P4_03           | P0_23 | P3_20          | P2_02 | P2_18 | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -     | -              | -     | -     | -  |
| RIC_RE<br>SIN195<br>(0x0186) | EINT3    | RESSEL<br>(0-7)                      | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -               | -     | -              | -     | -     | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_28                     | P3_28 | P4_04           | P0_24 | P3_21          | P2_03 | P2_19 | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -               | -     | -              | -     | -     | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |       |       |       |       |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|-------|-------|-------|-------|----|----|
|                              |          |                                      | 0                         | 1     | 2     | 3     | 4     | 5     | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10    | 11    | 12    | 13    | 14 | 15 |
| RIC_RE<br>SIN196<br>(0x0188) | EINT4    | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_03                     | P0_02 | P4_05 | P0_25 | P3_23 | P2_04 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN197<br>(0x018A) | EINT5    | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_04                     | P0_03 | P0_10 | P0_26 | P4_17 | P4_28 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN198<br>(0x018C) | EINT6    | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_05                     | P3_09 | P0_11 | P0_27 | P4_18 | P2_06 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN199<br>(0x018E) | EINT7    | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_06                     | P4_00 | P0_12 | P0_29 | P4_20 | P2_07 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN200<br>(0x0190) | EINT8    | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_07                     | P3_11 | P0_13 | P0_30 | P4_21 | P4_29 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |       |       |       |       |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|-------|-------|-------|-------|----|----|
|                              |          |                                      | 0                         | 1     | 2     | 3     | 4     | 5     | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10    | 11    | 12    | 13    | 14 | 15 |
| RIC_RE<br>SIN201<br>(0x0192) | EINT9    | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_08                     | P4_01 | P3_01 | P0_31 | P1_16 | P2_08 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN202<br>(0x0194) | EINT10   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_09                     | P4_02 | P3_02 | P1_00 | P4_23 | P4_31 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN203<br>(0x0196) | EINT11   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_10                     | P0_04 | P3_03 | P1_01 | P1_18 | P3_24 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN204<br>(0x0198) | EINT12   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_11                     | P3_14 | P3_04 | P1_02 | P1_20 | P3_25 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN205<br>(0x019A) | EINT13   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_12                     | P0_05 | P4_06 | P4_08 | P1_22 | P3_26 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |       |       |       |       |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|-------|-------|-------|-------|----|----|
|                              |          |                                      | 0                         | 1     | 2     | 3     | 4     | 5     | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10    | 11    | 12    | 13    | 14 | 15 |
| RIC_RE<br>SIN206<br>(0x019C) | EINT14   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_13                     | P3_16 | P4_07 | P4_09 | P1_24 | P3_27 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN207<br>(0x019E) | EINT15   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_14                     | P0_06 | P3_05 | P4_10 | P1_25 | P2_09 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN208<br>(0x01A0) | EINT16   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_15                     | P4_19 | P3_06 | P4_11 | P4_24 | P3_29 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN209<br>(0x01A2) | EINT17   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_17                     | P3_19 | P0_14 | P3_10 | P1_26 | P3_30 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN210<br>(0x01A4) | EINT18   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_19                     | P3_08 | P0_15 | P3_13 | P1_27 | P3_31 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |       |       |       |       |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|-------|-------|-------|-------|----|----|
|                              |          |                                      | 0                         | 1     | 2     | 3     | 4     | 5     | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10    | 11    | 12    | 13    | 14 | 15 |
| RIC_RE<br>SIN211<br>(0x01A6) | EINT19   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_21                     | P3_22 | P0_16 | P3_15 | P4_25 | P2_10 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN212<br>(0x01A8) | EINT20   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_23                     | P3_18 | P3_07 | P4_12 | P1_29 | P2_11 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN213<br>(0x01AA) | EINT21   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_28                     | P3_12 | P0_17 | P4_13 | P1_30 | P2_12 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN214<br>(0x01AC) | EINT22   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P2_00                     | P4_22 | P0_18 | P4_14 | P1_31 | P2_14 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |
| RIC_RE<br>SIN215<br>(0x01AE) | EINT23   | RESSEL<br>(0-7)                      | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -     | -     | -     | -     | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P2_05                     | P0_07 | P0_19 | P4_15 | P4_26 | P2_15 | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -     | -     | -     | -     | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |      |      |                |    |    |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|------|------|----------------|----|----|----|----|
|                              |          |                                      | 0                         | 1    | 2    | 3              | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                         | 9    | 10   | 11             | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN216<br>(0x01B0) | TEXT0    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0 | TOT1 | PPG0_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -    | -    | -              | -  | -  | -  | -  |
| RIC_RE<br>SIN217<br>(0x01B2) | TEXT1    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0 | TOT1 | PPG1_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -    | -    | -              | -  | -  | -  | -  |
| RIC_RE<br>SIN218<br>(0x01B4) | TEXT2    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0 | TOT1 | PPG2_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -    | -    | -              | -  | -  | -  | -  |
| RIC_RE<br>SIN219<br>(0x01B6) | TEXT3    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0 | TOT1 | PPG3_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -    | -    | -              | -  | -  | -  | -  |
| RIC_RE<br>SIN220<br>(0x01B8) | TEXT4    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0 | TOT1 | PPG4_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -    | -    | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -    | -    | -              | -  | -  | -  | -  |



| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                 |                |    |    |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|----------------|-----------------|----------------|----|----|----|----|
|                              |          |                                      | 0                         | 1              | 2               | 3              | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                         | 9              | 10              | 11             | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN224<br>(0x01C0) | TEXT8    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET | RLT16_<br>UFSET | PPG6_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -              | -               | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -              | -               | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -              | -               | -              | -  | -  | -  | -  |
| RIC_RE<br>SIN225<br>(0x01C2) | TEXT9    | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET | RLT16_<br>UFSET | PPG7_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -              | -               | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -              | -               | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -              | -               | -              | -  | -  | -  | -  |
| RIC_RE<br>SIN226<br>(0x01C4) | TEXT10   | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET | RLT16_<br>UFSET | PPG8_T<br>OUT2 | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -              | -               | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | -                         | -              | -               | -              | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -              | -               | -              | -  | -  | -  | -  |

| Register<br>(Offset) | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                |                |                |    |    |    |
|----------------------|-----------------|--------------------------------------|---------------------------|----------------|----------------|----------------|----------------|----|----|----|
|                      |                 |                                      | 0                         | 1              | 2              | 3              | 4              | 5  | 6  | 7  |
|                      |                 |                                      | 8                         | 9              | 10             | 11             | 12             | 13 | 14 | 15 |
| IN232<br>(0x01D0)    | OCU0_C<br>K0    | RESSEL<br>(0-7)                      | FRT0                      | FRT1           | FRT2           | FRT3           | FRT4           | -  | -  | -  |
|                      |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      | OCU0_CK<br>1    | RESSEL<br>(0-7)                      | FRT0                      | FRT1           | FRT2           | FRT3           | FRT4           | -  | -  | -  |
|                      |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      | OCU0_D<br>OWNB0 | RESSEL<br>(0-7)                      | FRT0_D<br>OWNB            | FRT1_D<br>OWNB | FRT2_D<br>OWNB | FRT3_D<br>OWNB | FRT4_D<br>OWNB | -  | -  | -  |
|                      |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      | OCU0_D<br>OWNB1 | RESSEL<br>(0-7)                      | FRT0_D<br>OWNB            | FRT1_D<br>OWNB | FRT2_D<br>OWNB | FRT3_D<br>OWNB | FRT4_D<br>OWNB | -  | -  | -  |
|                      |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      | OCU0_FC<br>MD0  | RESSEL<br>(0-7)                      | FRT0_F<br>CMD             | FRT1_F<br>CMD  | FRT2_F<br>CMD  | FRT3_F<br>CMD  | FRT4_F<br>CMD  | -  | -  | -  |
|                      |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                      |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |

| Register<br>(Offset) | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                  |                  |                  |    |    |    |
|----------------------|-------------------|--------------------------------------|---------------------------|------------------|------------------|------------------|------------------|----|----|----|
|                      |                   |                                      | 0                         | 1                | 2                | 3                | 4                | 5  | 6  | 7  |
|                      |                   |                                      | 8                         | 9                | 10               | 11               | 12               | 13 | 14 | 15 |
| IN232<br>(0x01D0)    | OCU0_FC<br>MD1    | RESSEL<br>(0-7)                      | FRT0_F<br>CMD             | FRT1_F<br>CMD    | FRT2_F<br>CMD    | FRT3_F<br>CMD    | FRT4_F<br>CMD    | -  | -  | -  |
|                      |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      | OCU0_MT<br>SF0    | RESSEL<br>(0-7)                      | FRT0_M<br>TSF             | FRT1_M<br>TSF    | FRT2_M<br>TSF    | FRT3_M<br>TSF    | FRT4_M<br>TSF    | -  | -  | -  |
|                      |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      | OCU0_MT<br>SF1    | RESSEL<br>(0-7)                      | FRT0_M<br>TSF             | FRT1_M<br>TSF    | FRT2_M<br>TSF    | FRT3_M<br>TSF    | FRT4_M<br>TSF    | -  | -  | -  |
|                      |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      | OCU0_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                      |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      | OCU0_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                      |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                      |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |               |               |               |               |    |    |    |
|------------------------------|----------------|--------------------------------------|---------------------------|---------------|---------------|---------------|---------------|----|----|----|
|                              |                |                                      | 0                         | 1             | 2             | 3             | 4             | 5  | 6  | 7  |
|                              |                |                                      | 8                         | 9             | 10            | 11            | 12            | 13 | 14 | 15 |
| IN232<br>(0x01D0)            | OCU0_ZT<br>SF0 | RESSEL<br>(0-7)                      | FRT0_Z<br>TSF             | FRT1_Z<br>TSF | FRT2_Z<br>TSF | FRT3_Z<br>TSF | FRT4_Z<br>TSF | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              | OCU0_ZT<br>SF1 | RESSEL<br>(0-7)                      | FRT0_Z<br>TSF             | FRT1_Z<br>TSF | FRT2_Z<br>TSF | FRT3_Z<br>TSF | FRT4_Z<br>TSF | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
| RIC_RE<br>SIN233<br>(0x01D2) | OCU0_M<br>OD0  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -             | -             | -             | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
| RIC_RE<br>SIN234<br>(0x01D4) | OCU0_M<br>OD1  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -             | -             | -             | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
| RIC_RE<br>SIN235<br>(0x01D6) | OCU1_CK<br>0   | RESSEL<br>(0-7)                      | FRT0                      | FRT1          | FRT2          | FRT3          | FRT4          | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |

| Register<br>(Offset)         | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                |                |                |    |    |    |
|------------------------------|-----------------|--------------------------------------|---------------------------|----------------|----------------|----------------|----------------|----|----|----|
|                              |                 |                                      | 0                         | 1              | 2              | 3              | 4              | 5  | 6  | 7  |
|                              |                 |                                      | 8                         | 9              | 10             | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN235<br>(0x01D6) | OCU1_CK<br>1    | RESSEL<br>(0-7)                      | FRT0                      | FRT1           | FRT2           | FRT3           | FRT4           | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU1_D<br>OWNB0 | RESSEL<br>(0-7)                      | FRT0_D<br>OWNB            | FRT1_D<br>OWNB | FRT2_D<br>OWNB | FRT3_D<br>OWNB | FRT4_D<br>OWNB | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU1_D<br>OWNB1 | RESSEL<br>(0-7)                      | FRT0_D<br>OWNB            | FRT1_D<br>OWNB | FRT2_D<br>OWNB | FRT3_D<br>OWNB | FRT4_D<br>OWNB | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU1_FC<br>MD0  | RESSEL<br>(0-7)                      | FRT0_F<br>CMD             | FRT1_F<br>CMD  | FRT2_F<br>CMD  | FRT3_F<br>CMD  | FRT4_F<br>CMD  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU1_FC<br>MD1  | RESSEL<br>(0-7)                      | FRT0_F<br>CMD             | FRT1_F<br>CMD  | FRT2_F<br>CMD  | FRT3_F<br>CMD  | FRT4_F<br>CMD  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |              |              |              |              |    |    |    |
|------------------------------|---------------|--------------------------------------|---------------------------|--------------|--------------|--------------|--------------|----|----|----|
|                              |               |                                      | 0                         | 1            | 2            | 3            | 4            | 5  | 6  | 7  |
|                              |               |                                      | 8                         | 9            | 10           | 11           | 12           | 13 | 14 | 15 |
| RIC_RE<br>SIN235<br>(0x01D6) | OCU1_MTSF0    | RESSEL (0-7)                         | FRT0_MTSF                 | FRT1_MTSF    | FRT2_MTSF    | FRT3_MTSF    | FRT4_MTSF    | -  | -  | -  |
|                              |               | RESSEL (8-15)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (0-7)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (8-15)                       | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              | OCU1_MTSF1    | RESSEL (0-7)                         | FRT0_MTSF                 | FRT1_MTSF    | FRT2_MTSF    | FRT3_MTSF    | FRT4_MTSF    | -  | -  | -  |
|                              |               | RESSEL (8-15)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (0-7)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (8-15)                       | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              | OCU1_T0[31:0] | RESSEL (0-7)                         | FRT0_T[31:0]              | FRT1_T[31:0] | FRT2_T[31:0] | FRT3_T[31:0] | FRT4_T[31:0] | -  | -  | -  |
|                              |               | RESSEL (8-15)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (0-7)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (8-15)                       | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              | OCU1_T1[31:0] | RESSEL (0-7)                         | FRT0_T[31:0]              | FRT1_T[31:0] | FRT2_T[31:0] | FRT3_T[31:0] | FRT4_T[31:0] | -  | -  | -  |
|                              |               | RESSEL (8-15)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (0-7)                        | -                         | -            | -            | -            | -            | -  | -  | -  |
|                              |               | PORTSEL (8-15)                       | -                         | -            | -            | -            | -            | -  | -  | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |               |               |               |               |    |    |    |
|------------------------------|----------------|--------------------------------------|---------------------------|---------------|---------------|---------------|---------------|----|----|----|
|                              |                |                                      | 0                         | 1             | 2             | 3             | 4             | 5  | 6  | 7  |
|                              |                |                                      | 8                         | 9             | 10            | 11            | 12            | 13 | 14 | 15 |
| RIC_RE<br>SIN235<br>(0x01D6) | OCU1_ZT<br>SF0 | RESSEL<br>(0-7)                      | FRT0_Z<br>TSF             | FRT1_Z<br>TSF | FRT2_Z<br>TSF | FRT3_Z<br>TSF | FRT4_Z<br>TSF | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              | OCU1_ZT<br>SF1 | RESSEL<br>(0-7)                      | FRT0_Z<br>TSF             | FRT1_Z<br>TSF | FRT2_Z<br>TSF | FRT3_Z<br>TSF | FRT4_Z<br>TSF | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
| RIC_RE<br>SIN236<br>(0x01D8) | OCU1_M<br>OD0  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -             | -             | -             | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |
| RIC_RE<br>SIN237<br>(0x01DA) | OCU1_M<br>OD1  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -             | -             | -             | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -             | -             | -             | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -             | -             | -             | -  | -  | -  |

| Register<br>(Offset)         | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                |                |                |    |    |    |
|------------------------------|-----------------|--------------------------------------|---------------------------|----------------|----------------|----------------|----------------|----|----|----|
|                              |                 |                                      | 0                         | 1              | 2              | 3              | 4              | 5  | 6  | 7  |
|                              |                 |                                      | 8                         | 9              | 10             | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN238<br>(0x01DC) | OCU2_CK<br>0    | RESSEL<br>(0-7)                      | FRT0                      | FRT1           | FRT2           | FRT3           | FRT4           | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU2_CK<br>1    | RESSEL<br>(0-7)                      | FRT0                      | FRT1           | FRT2           | FRT3           | FRT4           | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU2_D<br>OWNB0 | RESSEL<br>(0-7)                      | FRT0_D<br>OWNB            | FRT1_D<br>OWNB | FRT2_D<br>OWNB | FRT3_D<br>OWNB | FRT4_D<br>OWNB | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |



| Register<br>(Offset)         | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                |                |                |    |    |    |
|------------------------------|-----------------|--------------------------------------|---------------------------|----------------|----------------|----------------|----------------|----|----|----|
|                              |                 |                                      | 0                         | 1              | 2              | 3              | 4              | 5  | 6  | 7  |
|                              |                 |                                      | 8                         | 9              | 10             | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN238<br>(0x01DC) | OCU2_D<br>OWNB1 | RESSEL<br>(0-7)                      | FRT0_D<br>OWNB            | FRT1_D<br>OWNB | FRT2_D<br>OWNB | FRT3_D<br>OWNB | FRT4_D<br>OWNB | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU2_FC<br>MD0  | RESSEL<br>(0-7)                      | FRT0_F<br>CMD             | FRT1_F<br>CMD  | FRT2_F<br>CMD  | FRT3_F<br>CMD  | FRT4_F<br>CMD  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU2_FC<br>MD1  | RESSEL<br>(0-7)                      | FRT0_F<br>CMD             | FRT1_F<br>CMD  | FRT2_F<br>CMD  | FRT3_F<br>CMD  | FRT4_F<br>CMD  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU2_MT<br>SF0  | RESSEL<br>(0-7)                      | FRT0_M<br>TSF             | FRT1_M<br>TSF  | FRT2_M<br>TSF  | FRT3_M<br>TSF  | FRT4_M<br>TSF  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              | OCU2_MT<br>SF1  | RESSEL<br>(0-7)                      | FRT0_M<br>TSF             | FRT1_M<br>TSF  | FRT2_M<br>TSF  | FRT3_M<br>TSF  | FRT4_M<br>TSF  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -              | -              | -              | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -              | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                  |                  |                  |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|------------------|------------------|------------------|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                | 3                | 4                | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10               | 11               | 12               | 13 | 14 | 15 |
| RIC_RE<br>SIN238<br>(0x01DC) | OCU2_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              | OCU2_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              | OCU2_ZT<br>SF0    | RESSEL<br>(0-7)                      | FRT0_Z<br>TSF             | FRT1_Z<br>TSF    | FRT2_Z<br>TSF    | FRT3_Z<br>TSF    | FRT4_Z<br>TSF    | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              | OCU2_ZT<br>SF1    | RESSEL<br>(0-7)                      | FRT0_Z<br>TSF             | FRT1_Z<br>TSF    | FRT2_Z<br>TSF    | FRT3_Z<br>TSF    | FRT4_Z<br>TSF    | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |    |    |    |    |    |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----|----|----|----|----|----|
|                              |               |                                      | 0                         | 1     | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |               |                                      | 8                         | 9     | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN239<br>(0x01DE) | OCU2_M<br>OD0 | RESSEL<br>(0-7)                      | set 1                     | set 0 | -  | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN240<br>(0x01E0) | OCU2_M<br>OD1 | RESSEL<br>(0-7)                      | set 1                     | set 0 | -  | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                 |    |    |    |    |    |
|------------------------------|-----------------|--------------------------------------|---------------------------|----------------|-----------------|----|----|----|----|----|
|                              |                 |                                      | 0                         | 1              | 2               | 3  | 4  | 5  | 6  | 7  |
|                              |                 |                                      | 8                         | 9              | 10              | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN256<br>(0x0200) | OCU8_CK<br>0    | RESSEL<br>(0-7)                      | FRT8                      | FRT9           | FRT10           | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU8_CK<br>1    | RESSEL<br>(0-7)                      | FRT8                      | FRT9           | FRT10           | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU8_D<br>OWNB0 | RESSEL<br>(0-7)                      | FRT8_D<br>OWNB            | FRT9_D<br>OWNB | FRT10_<br>DOWNB | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU8_D<br>OWNB1 | RESSEL<br>(0-7)                      | FRT8_D<br>OWNB            | FRT9_D<br>OWNB | FRT10_<br>DOWNB | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU8_FC<br>MD0  | RESSEL<br>(0-7)                      | FRT8_F<br>CMD             | FRT9_F<br>CMD  | FRT10_<br>FCMD  | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                   |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|-------------------|----|----|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                 | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10                | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN256<br>(0x0200) | OCU8_FC<br>MD1    | RESSEL<br>(0-7)                      | FRT8_F<br>CMD             | FRT9_F<br>CMD    | FRT10_<br>FCMD    | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU8_MT<br>SF0    | RESSEL<br>(0-7)                      | FRT8_M<br>TSF             | FRT9_M<br>TSF    | FRT10_<br>MTSF    | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU8_MT<br>SF1    | RESSEL<br>(0-7)                      | FRT8_M<br>TSF             | FRT9_M<br>TSF    | FRT10_<br>MTSF    | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU8_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU8_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |               |                |    |    |    |    |    |
|------------------------------|----------------|--------------------------------------|---------------------------|---------------|----------------|----|----|----|----|----|
|                              |                |                                      | 0                         | 1             | 2              | 3  | 4  | 5  | 6  | 7  |
|                              |                |                                      | 8                         | 9             | 10             | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN256<br>(0x0200) | OCU8_ZT<br>SF0 | RESSEL<br>(0-7)                      | FRT8_Z<br>TSF             | FRT9_Z<br>TSF | FRT10_<br>ZTSF | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              | OCU8_ZT<br>SF1 | RESSEL<br>(0-7)                      | FRT8_Z<br>TSF             | FRT9_Z<br>TSF | FRT10_<br>ZTSF | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN257<br>(0x0202) | OCU8_M<br>OD0  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |       |    |    |    |    |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|-------|----|----|----|----|----|
|                              |               |                                      | 0                         | 1     | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |               |                                      | 8                         | 9     | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN258<br>(0x0204) | OCU8_M<br>OD1 | RESSEL<br>(0-7)                      | set 1                     | set 0 | -     | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN259<br>(0x0206) | OCU9_CK<br>0  | RESSEL<br>(0-7)                      | FRT8                      | FRT9  | FRT10 | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              | OCU9_CK<br>1  | RESSEL<br>(0-7)                      | FRT8                      | FRT9  | FRT10 | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                 |    |    |    |    |    |
|------------------------------|-----------------|--------------------------------------|---------------------------|----------------|-----------------|----|----|----|----|----|
|                              |                 |                                      | 0                         | 1              | 2               | 3  | 4  | 5  | 6  | 7  |
|                              |                 |                                      | 8                         | 9              | 10              | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN259<br>(0x0206) | OCU9_D<br>OWNB0 | RESSEL<br>(0-7)                      | FRT8_D<br>OWNB            | FRT9_D<br>OWNB | FRT10_<br>DOWNB | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU9_D<br>OWNB1 | RESSEL<br>(0-7)                      | FRT8_D<br>OWNB            | FRT9_D<br>OWNB | FRT10_<br>DOWNB | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU9_FC<br>MD0  | RESSEL<br>(0-7)                      | FRT8_F<br>CMD             | FRT9_F<br>CMD  | FRT10_<br>FCMD  | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU9_FC<br>MD1  | RESSEL<br>(0-7)                      | FRT8_F<br>CMD             | FRT9_F<br>CMD  | FRT10_<br>FCMD  | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU9_MT<br>SF0  | RESSEL<br>(0-7)                      | FRT8_M<br>TSF             | FRT9_M<br>TSF  | FRT10_<br>MTSF  | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |



| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                   |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|-------------------|----|----|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                 | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10                | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN259<br>(0x0206) | OCU9_MT<br>SF1    | RESSEL<br>(0-7)                      | FRT8_M<br>TSF             | FRT9_M<br>TSF    | FRT10_<br>MTSF    | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU9_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU9_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU9_ZT<br>SF0    | RESSEL<br>(0-7)                      | FRT8_Z<br>TSF             | FRT9_Z<br>TSF    | FRT10_<br>ZTSF    | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU9_ZT<br>SF1    | RESSEL<br>(0-7)                      | FRT8_Z<br>TSF             | FRT9_Z<br>TSF    | FRT10_<br>ZTSF    | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |    |    |    |    |    |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----|----|----|----|----|----|
|                              |               |                                      | 0                         | 1     | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |               |                                      | 8                         | 9     | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN260<br>(0x0208) | OCU9_M<br>OD0 | RESSEL<br>(0-7)                      | set 1                     | set 0 | -  | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN261<br>(0x020A) | OCU9_M<br>OD1 | RESSEL<br>(0-7)                      | set 1                     | set 0 | -  | -  | -  | -  | -  | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource         | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                |                 |    |    |    |    |    |
|------------------------------|------------------|--------------------------------------|---------------------------|----------------|-----------------|----|----|----|----|----|
|                              |                  |                                      | 0                         | 1              | 2               | 3  | 4  | 5  | 6  | 7  |
|                              |                  |                                      | 8                         | 9              | 10              | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN262<br>(0x020C) | OCU10_C<br>K0    | RESSEL<br>(0-7)                      | FRT8                      | FRT9           | FRT10           | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU10_C<br>K1    | RESSEL<br>(0-7)                      | FRT8                      | FRT9           | FRT10           | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU10_D<br>OWNB0 | RESSEL<br>(0-7)                      | FRT8_D<br>OWNB            | FRT9_D<br>OWNB | FRT10_<br>DOWNB | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU10_D<br>OWNB1 | RESSEL<br>(0-7)                      | FRT8_D<br>OWNB            | FRT9_D<br>OWNB | FRT10_<br>DOWNB | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              | OCU10_F<br>CMD0  | RESSEL<br>(0-7)                      | FRT8_F<br>CMD             | FRT9_F<br>CMD  | FRT10_<br>FCMD  | -  | -  | -  | -  | -  |
|                              |                  | RESSEL<br>(8-15)                     | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (0-7)                    | -                         | -              | -               | -  | -  | -  | -  | -  |
|                              |                  | PORTSE<br>L (8-15)                   | -                         | -              | -               | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource           | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                   |    |    |    |    |    |
|------------------------------|--------------------|--------------------------------------|---------------------------|------------------|-------------------|----|----|----|----|----|
|                              |                    |                                      | 0                         | 1                | 2                 | 3  | 4  | 5  | 6  | 7  |
|                              |                    |                                      | 8                         | 9                | 10                | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN262<br>(0x020C) | OCU10_F<br>CMD1    | RESSEL<br>(0-7)                      | FRT8_F<br>CMD             | FRT9_F<br>CMD    | FRT10_<br>FCMD    | -  | -  | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU10_M<br>TSF0    | RESSEL<br>(0-7)                      | FRT8_M<br>TSF             | FRT9_M<br>TSF    | FRT10_<br>MTSF    | -  | -  | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU10_M<br>TSF1    | RESSEL<br>(0-7)                      | FRT8_M<br>TSF             | FRT9_M<br>TSF    | FRT10_<br>MTSF    | -  | -  | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU10_T<br>0[31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | OCU10_T<br>1[31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource        | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |               |                |    |    |    |    |    |
|------------------------------|-----------------|--------------------------------------|---------------------------|---------------|----------------|----|----|----|----|----|
|                              |                 |                                      | 0                         | 1             | 2              | 3  | 4  | 5  | 6  | 7  |
|                              |                 |                                      | 8                         | 9             | 10             | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN262<br>(0x020C) | OCU10_Z<br>TSF0 | RESSEL<br>(0-7)                      | FRT8_Z<br>TSF             | FRT9_Z<br>TSF | FRT10_<br>ZTSF | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              | OCU10_Z<br>TSF1 | RESSEL<br>(0-7)                      | FRT8_Z<br>TSF             | FRT9_Z<br>TSF | FRT10_<br>ZTSF | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN263<br>(0x020E) | OCU10_M<br>OD0  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -              | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN264<br>(0x0210) | OCU10_M<br>OD1  | RESSEL<br>(0-7)                      | set 1                     | set 0         | -              | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN280<br>(0x0230) | ICU0_IN0        | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS0_L<br>SYN | -              | -  | -  | -  | -  | -  |
|                              |                 | RESSEL<br>(8-15)                     | -                         | -             | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (0-7)                    | P1_03                     | P3_08         | -              | -  | -  | -  | -  | -  |
|                              |                 | PORTSE<br>L (8-15)                   | -                         | -             | -              | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                  |                  |                  |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|------------------|------------------|------------------|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                | 3                | 4                | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10               | 11               | 12               | 13 | 14 | 15 |
| RIC_RE<br>SIN281<br>(0x0232) | ICU0_IN1          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS1_L<br>SYN    | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_04                     | P3_09            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN282<br>(0x0234) | ICU0_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              | ICU0_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN283<br>(0x0236) | ICU1_IN0          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS2_L<br>SYN    | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_05                     | P3_10            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN284<br>(0x0238) | ICU1_IN1          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS3_L<br>SYN    | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_06                     | P3_11            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                  |                  |                  |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|------------------|------------------|------------------|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                | 3                | 4                | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10               | 11               | 12               | 13 | 14 | 15 |
| RIC_RE<br>SIN285<br>(0x023A) | ICU1_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              | ICU1_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN286<br>(0x023C) | ICU2_IN0          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS4_L<br>SYN    | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_07                     | P3_12            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN287<br>(0x023E) | ICU2_IN1          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_08                     | P3_13            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                  |                  |                  |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|------------------|------------------|------------------|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                | 3                | 4                | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10               | 11               | 12               | 13 | 14 | 15 |
| RIC_RE<br>SIN288<br>(0x0240) | ICU2_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              | ICU2_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT0_T<br>[31:0]          | FRT1_T<br>[31:0] | FRT2_T<br>[31:0] | FRT3_T<br>[31:0] | FRT4_T<br>[31:0] | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN304<br>(0x0260) | ICU8_IN0          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS8_L<br>SYN    | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_09                     | P3_14            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |
| RIC_RE<br>SIN305<br>(0x0262) | ICU8_IN1          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS9_L<br>SYN    | -                | -                | -                | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_10                     | P3_15            | -                | -                | -                | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                | -                | -                | -  | -  | -  |



| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                   |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|-------------------|----|----|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                 | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10                | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN306<br>(0x0264) | ICU8_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | ICU8_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN307<br>(0x0266) | ICU9_IN0          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS10_<br>LSYN   | -                 | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_11                     | P3_16            | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN308<br>(0x0268) | ICU9_IN1          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS11_<br>LSYN   | -                 | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_12                     | P3_17            | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource          | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                   |    |    |    |    |    |
|------------------------------|-------------------|--------------------------------------|---------------------------|------------------|-------------------|----|----|----|----|----|
|                              |                   |                                      | 0                         | 1                | 2                 | 3  | 4  | 5  | 6  | 7  |
|                              |                   |                                      | 8                         | 9                | 10                | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN309<br>(0x026A) | ICU9_T0[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              | ICU9_T1[<br>31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_<br>T[31:0] | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN310<br>(0x026C) | ICU10_IN<br>0     | RESSEL<br>(0-7)                      | PORT_<br>PIN              | MFS12_<br>LSYN   | -                 | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_14                     | P3_18            | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN311<br>(0x026E) | ICU10_IN<br>1     | RESSEL<br>(0-7)                      | PORT_<br>PIN              | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | RESSEL<br>(8-15)                     | -                         | -                | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (0-7)                    | P1_15                     | P3_19            | -                 | -  | -  | -  | -  | -  |
|                              |                   | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource           | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                  |                   |                |                |    |    |    |
|------------------------------|--------------------|--------------------------------------|---------------------------|------------------|-------------------|----------------|----------------|----|----|----|
|                              |                    |                                      | 0                         | 1                | 2                 | 3              | 4              | 5  | 6  | 7  |
|                              |                    |                                      | 8                         | 9                | 10                | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN312<br>(0x0270) | ICU10_T0<br>[31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_T<br>[31:0] | -              | -              | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              | ICU10_T1<br>[31:0] | RESSEL<br>(0-7)                      | FRT8_T<br>[31:0]          | FRT9_T<br>[31:0] | FRT10_T<br>[31:0] | -              | -              | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN352<br>(0x02C0) | AIN8               | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0             | -                 | -              | -              | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN353<br>(0x02C2) | BIN8               | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT1             | -                 | -              | -              | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN354<br>(0x02C4) | ZIN8               | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT16            | PPG6_T<br>OUT0    | PPG6_T<br>OUT2 | PPG7_T<br>OUT0 | -  | -  | -  |
|                              |                    | RESSEL<br>(8-15)                     | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (0-7)                    | -                         | -                | -                 | -              | -              | -  | -  | -  |
|                              |                    | PORTSE<br>L (8-15)                   | -                         | -                | -                 | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |                |                |               |               |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----------------|----------------|----------------|---------------|---------------|----|
|                              |               |                                      | 0                         | 1     | 2              | 3              | 4              | 5             | 6             | 7  |
|                              |               |                                      | 8                         | 9     | 10             | 11             | 12             | 13            | 14            | 15 |
| RIC_RE<br>SIN355<br>(0x02C6) | AIN9          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT16 | -              | -              | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -              | -              | -             | -             | -  |
| RIC_RE<br>SIN356<br>(0x02C8) | BIN9          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT17 | -              | -              | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -              | -              | -             | -             | -  |
| RIC_RE<br>SIN357<br>(0x02CA) | ZIN9          | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | PPG6_T<br>OUT0 | PPG6_T<br>OUT2 | PPG7_T<br>OUT0 | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -              | -              | -             | -             | -  |
| RIC_RE<br>SIN376<br>(0x02F0) | PPG0_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT0           | RLT0_U<br>FSET | FRT0_M<br>TSF | OCU0_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_16                     | P3_04 | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -              | -              | -             | -             | -  |
| RIC_RE<br>SIN377<br>(0x02F2) | PPG0_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -              | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -              | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -              | -              | -             | -             | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |      |                |               |               |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----------------|------|----------------|---------------|---------------|----|
|                              |               |                                      | 0                         | 1     | 2              | 3    | 4              | 5             | 6             | 7  |
|                              |               |                                      | 8                         | 9     | 10             | 11   | 12             | 13            | 14            | 15 |
| RIC_RE<br>SIN378<br>(0x02F4) | PPG0_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN379<br>(0x02F6) | PPG1_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT0 | RLT0_U<br>FSET | FRT0_M<br>TSF | OCU0_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_16                     | P3_04 | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN380<br>(0x02F8) | PPG1_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN381<br>(0x02FA) | PPG1_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN382<br>(0x02FC) | PPG2_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT0 | RLT0_U<br>FSET | FRT0_M<br>TSF | OCU0_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_16                     | P3_04 | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |      |                |               |               |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----------------|------|----------------|---------------|---------------|----|
|                              |               |                                      | 0                         | 1     | 2              | 3    | 4              | 5             | 6             | 7  |
|                              |               |                                      | 8                         | 9     | 10             | 11   | 12             | 13            | 14            | 15 |
| RIC_RE<br>SIN383<br>(0x02FE) | PPG2_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN384<br>(0x0300) | PPG2_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN385<br>(0x0302) | PPG3_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT1 | RLT1_U<br>FSET | FRT0_M<br>TSF | OCU0_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_16                     | P3_04 | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN386<br>(0x0304) | PPG3_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN387<br>(0x0306) | PPG3_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |      |                |               |               |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----------------|------|----------------|---------------|---------------|----|
|                              |               |                                      | 0                         | 1     | 2              | 3    | 4              | 5             | 6             | 7  |
|                              |               |                                      | 8                         | 9     | 10             | 11   | 12             | 13            | 14            | 15 |
| RIC_RE<br>SIN388<br>(0x0308) | PPG4_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT1 | RLT1_U<br>FSET | FRT0_M<br>TSF | OCU0_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_16                     | P3_04 | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN389<br>(0x030A) | PPG4_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN390<br>(0x030C) | PPG4_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN391<br>(0x030E) | PPG5_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT1 | RLT1_U<br>FSET | FRT0_M<br>TSF | OCU0_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_16                     | P3_04 | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |
| RIC_RE<br>SIN392<br>(0x0310) | PPG5_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -    | -              | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -    | -              | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -    | -              | -             | -             | -  |

| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |       |                 |               |               |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----------------|-------|-----------------|---------------|---------------|----|
|                              |               |                                      | 0                         | 1     | 2              | 3     | 4               | 5             | 6             | 7  |
|                              |               |                                      | 8                         | 9     | 10             | 11    | 12              | 13            | 14            | 15 |
| RIC_RE<br>SIN393<br>(0x0312) | PPG5_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN394<br>(0x0314) | PPG6_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT16 | RLT16_<br>UFSET | FRT8_M<br>TSF | OCU8_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_29                     | P3_20 | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN395<br>(0x0316) | PPG6_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN396<br>(0x0318) | PPG6_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN397<br>(0x031A) | PPG7_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT16 | RLT16_<br>UFSET | FRT8_M<br>TSF | OCU8_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_29                     | P3_20 | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |



| Register<br>(Offset)         | Resource      | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |       |                 |               |               |    |
|------------------------------|---------------|--------------------------------------|---------------------------|-------|----------------|-------|-----------------|---------------|---------------|----|
|                              |               |                                      | 0                         | 1     | 2              | 3     | 4               | 5             | 6             | 7  |
|                              |               |                                      | 8                         | 9     | 10             | 11    | 12              | 13            | 14            | 15 |
| RIC_RE<br>SIN398<br>(0x031C) | PPG7_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN399<br>(0x031E) | PPG7_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN400<br>(0x0320) | PPG8_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT16 | RLT16_<br>UFSET | FRT8_M<br>TSF | OCU8_<br>OTD0 | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | P1_29                     | P3_20 | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN401<br>(0x0322) | PPG8_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN402<br>(0x0324) | PPG8_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |               | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |               | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |       |                 |               |               |    |
|------------------------------|----------------|--------------------------------------|---------------------------|-------|----------------|-------|-----------------|---------------|---------------|----|
|                              |                |                                      | 0                         | 1     | 2              | 3     | 4               | 5             | 6             | 7  |
|                              |                |                                      | 8                         | 9     | 10             | 11    | 12              | 13            | 14            | 15 |
| RIC_RE<br>SIN403<br>(0x0326) | PPG9_TI<br>N1  | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT17 | RLT17_<br>UFSET | FRT8_M<br>TSF | OCU8_<br>OTD0 | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | P1_29                     | P3_20 | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN404<br>(0x0328) | PPG9_TI<br>N2  | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN405<br>(0x032A) | PPG9_TI<br>N3  | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN406<br>(0x032C) | PPG10_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT17 | RLT17_<br>UFSET | FRT8_M<br>TSF | OCU8_<br>OTD0 | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | P1_29                     | P3_20 | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN407<br>(0x032E) | PPG10_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |       |                 |               |               |    |
|------------------------------|----------------|--------------------------------------|---------------------------|-------|----------------|-------|-----------------|---------------|---------------|----|
|                              |                |                                      | 0                         | 1     | 2              | 3     | 4               | 5             | 6             | 7  |
|                              |                |                                      | 8                         | 9     | 10             | 11    | 12              | 13            | 14            | 15 |
| RIC_RE<br>SIN408<br>(0x0330) | PPG10_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN409<br>(0x0332) | PPG11_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | TOT17 | RLT17_<br>UFSET | FRT8_M<br>TSF | OCU8_<br>OTD0 | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | P1_29                     | P3_20 | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN410<br>(0x0334) | PPG11_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN411<br>(0x0336) | PPG11_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |
| RIC_RE<br>SIN430<br>(0x035C) | PPG12_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | -     | -               | -             | -             | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (0-7)                    | P2_06                     | P3_31 | -              | -     | -               | -             | -             | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -     | -               | -             | -             | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |    |    |    |    |    |
|------------------------------|----------------|--------------------------------------|---------------------------|-------|----------------|----|----|----|----|----|
|                              |                |                                      | 0                         | 1     | 2              | 3  | 4  | 5  | 6  | 7  |
|                              |                |                                      | 8                         | 9     | 10             | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN431<br>(0x035E) | PPG12_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN432<br>(0x0360) | PPG12_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN433<br>(0x0362) | PPG13_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | P2_06                     | P3_31 | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN434<br>(0x0364) | PPG13_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN435<br>(0x0366) | PPG13_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource       | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |                |    |    |    |    |    |
|------------------------------|----------------|--------------------------------------|---------------------------|-------|----------------|----|----|----|----|----|
|                              |                |                                      | 0                         | 1     | 2              | 3  | 4  | 5  | 6  | 7  |
|                              |                |                                      | 8                         | 9     | 10             | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN436<br>(0x0368) | PPG14_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | P2_06                     | P3_31 | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN437<br>(0x036A) | PPG14_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN438<br>(0x036C) | PPG14_TI<br>N3 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN439<br>(0x036E) | PPG15_TI<br>N1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | TOT0  | RLT0_U<br>FSET | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | P2_06                     | P3_31 | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN440<br>(0x0370) | PPG15_TI<br>N2 | RESSEL<br>(0-7)                      | set 0                     | -     | -              | -  | -  | -  | -  | -  |
|                              |                | RESSEL<br>(8-15)                     | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (0-7)                    | -                         | -     | -              | -  | -  | -  | -  | -  |
|                              |                | PORTSE<br>L (8-15)                   | -                         | -     | -              | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource               | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |               |               |                |                |                |
|------------------------------|------------------------|--------------------------------------|---------------------------|-----------------|-----------------|---------------|---------------|----------------|----------------|----------------|
|                              |                        |                                      | 0                         | 1               | 2               | 3             | 4             | 5              | 6              | 7              |
|                              |                        |                                      | 8                         | 9               | 10              | 11            | 12            | 13             | 14             | 15             |
| RIC_RE<br>SIN441<br>(0x0372) | PPG15_TI<br>N3         | RESSEL<br>(0-7)                      | set 0                     | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -              | -              | -              |
| RIC_RE<br>SIN490<br>(0x03D4) | ADC12B0<br>_HWTRG<br>0 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0 | OCU1_<br>OTD0 | PPG0_T<br>OUT0 | PPG1_T<br>OUT2 | PPG3_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -              | -              | -              |
| RIC_RE<br>SIN491<br>(0x03D6) | ADC12B0<br>_HWTRG<br>1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0 | OCU2_<br>OTD0 | PPG0_T<br>OUT2 | PPG2_T<br>OUT0 | PPG4_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -              | -              | -              |
| RIC_RE<br>SIN492<br>(0x03D8) | ADC12B0<br>_HWTRG<br>2 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0 | OCU8_<br>OTD0 | PPG1_T<br>OUT0 | PPG2_T<br>OUT2 | PPG4_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -              | -              | -              |
| RIC_RE<br>SIN493<br>(0x03DA) | ADC12B0<br>_HWTRG<br>3 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0 | OCU9_<br>OTD0 | PPG1_T<br>OUT2 | PPG3_T<br>OUT0 | PPG5_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -              | -              | -              |

| Register<br>(Offset)         | Resource               | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                |                |                |
|------------------------------|------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|
|                              |                        |                                      | 0                         | 1               | 2               | 3              | 4              | 5              | 6              | 7              |
|                              |                        |                                      | 8                         | 9               | 10              | 11             | 12             | 13             | 14             | 15             |
| RIC_RE<br>SIN494<br>(0x03DC) | ADC12B0<br>_HWTRG<br>4 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU10_<br>OTD0 | PPG2_T<br>OUT0 | PPG3_T<br>OUT2 | PPG5_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN495<br>(0x03DE) | ADC12B0<br>_HWTRG<br>5 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU0_<br>OTD0  | PPG2_T<br>OUT2 | PPG4_T<br>OUT0 | PPG6_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN496<br>(0x03E0) | ADC12B0<br>_HWTRG<br>6 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU2_<br>OTD0  | PPG3_T<br>OUT0 | PPG4_T<br>OUT2 | PPG6_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN497<br>(0x03E2) | ADC12B0<br>_HWTRG<br>7 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU8_<br>OTD0  | PPG3_T<br>OUT2 | PPG5_T<br>OUT0 | PPG7_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN498<br>(0x03E4) | ADC12B0<br>_HWTRG<br>8 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU9_<br>OTD0  | PPG4_T<br>OUT0 | PPG5_T<br>OUT2 | PPG7_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                |                |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5              | 6              | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13             | 14             | 15              |
| RIC_RE<br>SIN499<br>(0x03E6) | ADC12B0<br>_HWTRG<br>9  | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU10_<br>OTD0 | PPG4_T<br>OUT2 | PPG6_T<br>OUT0 | PPG8_T<br>OUT0  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN500<br>(0x03E8) | ADC12B0<br>_HWTRG<br>10 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU0_<br>OTD0  | PPG5_T<br>OUT0 | PPG6_T<br>OUT2 | PPG8_T<br>OUT2  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN501<br>(0x03EA) | ADC12B0<br>_HWTRG<br>11 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU1_<br>OTD0  | PPG5_T<br>OUT2 | PPG7_T<br>OUT0 | PPG9_T<br>OUT0  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN502<br>(0x03EC) | ADC12B0<br>_HWTRG<br>12 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0  | OCU8_<br>OTD0  | PPG6_T<br>OUT0 | PPG7_T<br>OUT2 | PPG9_T<br>OUT2  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN503<br>(0x03EE) | ADC12B0<br>_HWTRG<br>13 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU9_<br>OTD0  | PPG6_T<br>OUT2 | PPG8_T<br>OUT0 | PPG10_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |



| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                |                 |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5              | 6               | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13             | 14              | 15              |
| RIC_RE<br>SIN504<br>(0x03F0) | ADC12B0<br>_HWTRG<br>14 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU10_<br>OTD0 | PPG7_T<br>OUT0 | PPG8_T<br>OUT2  | PPG10_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN505<br>(0x03F2) | ADC12B0<br>_HWTRG<br>15 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU0_<br>OTD0  | PPG7_T<br>OUT2 | PPG9_T<br>OUT0  | PPG11_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN506<br>(0x03F4) | ADC12B0<br>_HWTRG<br>16 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU1_<br>OTD0  | PPG8_T<br>OUT0 | PPG9_T<br>OUT2  | PPG11_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN507<br>(0x03F6) | ADC12B0<br>_HWTRG<br>17 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU2_<br>OTD0  | PPG8_T<br>OUT2 | PPG10_<br>TOUT0 | PPG12_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN508<br>(0x03F8) | ADC12B0<br>_HWTRG<br>18 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU9_<br>OTD0  | PPG9_T<br>OUT0 | PPG10_<br>TOUT2 | PPG12_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                 |                 |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5               | 6               | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13              | 14              | 15              |
| RIC_RE<br>SIN509<br>(0x03FA) | ADC12B0<br>_HWTRG<br>19 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU10_<br>OTD0 | PPG9_T<br>OUT2  | PPG11_<br>TOUT0 | PPG13_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN510<br>(0x03FC) | ADC12B0<br>_HWTRG<br>20 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU0_<br>OTD0  | PPG10_<br>TOUT0 | PPG11_<br>TOUT2 | PPG13_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN511<br>(0x03FE) | ADC12B0<br>_HWTRG<br>21 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU1_<br>OTD0  | PPG10_<br>TOUT2 | PPG12_<br>TOUT0 | PPG14_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN512<br>(0x0400) | ADC12B0<br>_HWTRG<br>22 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU2_<br>OTD0  | PPG11_<br>TOUT0 | PPG12_<br>TOUT2 | PPG14_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN513<br>(0x0402) | ADC12B0<br>_HWTRG<br>23 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU8_<br>OTD0  | PPG11_<br>TOUT2 | PPG13_<br>TOUT0 | PPG15_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |               |                |                 |                 |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|---------------|----------------|-----------------|-----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3             | 4              | 5               | 6               | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11            | 12             | 13              | 14              | 15              |
| RIC_RE<br>SIN514<br>(0x0404) | ADC12B0<br>_HWTRG<br>24 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0 | OCU10_<br>OTD0 | PPG12_<br>TOUT0 | PPG13_<br>TOUT2 | PPG15_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -               | -               |
| RIC_RE<br>SIN515<br>(0x0406) | ADC12B0<br>_HWTRG<br>25 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0 | OCU0_<br>OTD0  | PPG12_<br>TOUT2 | PPG14_<br>TOUT0 | -               |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -               | -               |
| RIC_RE<br>SIN516<br>(0x0408) | ADC12B0<br>_HWTRG<br>26 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0 | OCU1_<br>OTD0  | PPG13_<br>TOUT0 | PPG14_<br>TOUT2 | -               |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -               | -               |
| RIC_RE<br>SIN517<br>(0x040A) | ADC12B0<br>_HWTRG<br>27 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0 | OCU2_<br>OTD0  | PPG13_<br>TOUT2 | PPG15_<br>TOUT0 | -               |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -               | -               |
| RIC_RE<br>SIN518<br>(0x040C) | ADC12B0<br>_HWTRG<br>28 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0 | OCU8_<br>OTD0  | PPG14_<br>TOUT0 | PPG15_<br>TOUT2 | -               |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -               | -               |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |               |                 |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|---------------|-----------------|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4             | 5               | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12            | 13              | 14 | 15 |
| RIC_RE<br>SIN519<br>(0x040E) | ADC12B0<br>_HWTRG<br>29 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU9_<br>OTD0 | PPG14_<br>TOUT2 | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -  | -  |
| RIC_RE<br>SIN520<br>(0x0410) | ADC12B0<br>_HWTRG<br>30 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU1_<br>OTD0 | PPG15_<br>TOUT0 | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -  | -  |
| RIC_RE<br>SIN521<br>(0x0412) | ADC12B0<br>_HWTRG<br>31 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU2_<br>OTD0 | PPG15_<br>TOUT2 | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -  | -  |
| RIC_RE<br>SIN522<br>(0x0414) | ADC12B0<br>_HWTRG<br>32 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU8_<br>OTD0 | -               | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -  | -  |
| RIC_RE<br>SIN523<br>(0x0416) | ADC12B0<br>_HWTRG<br>33 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU9_<br>OTD0 | -               | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN524<br>(0x0418) | ADC12B0<br>_HWTRG<br>34 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN525<br>(0x041A) | ADC12B0<br>_HWTRG<br>35 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN526<br>(0x041C) | ADC12B0<br>_HWTRG<br>36 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0  | OCU2_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN527<br>(0x041E) | ADC12B0<br>_HWTRG<br>37 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU8_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN528<br>(0x0420) | ADC12B0<br>_HWTRG<br>38 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU9_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN529<br>(0x0422) | ADC12B0<br>_HWTRG<br>39 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN530<br>(0x0424) | ADC12B0<br>_HWTRG<br>40 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN531<br>(0x0426) | ADC12B0<br>_HWTRG<br>41 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU1_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN532<br>(0x0428) | ADC12B0<br>_HWTRG<br>42 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU8_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN533<br>(0x042A) | ADC12B0<br>_HWTRG<br>43 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU9_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN534<br>(0x042C) | ADC12B0<br>_HWTRG<br>44 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN535<br>(0x042E) | ADC12B0<br>_HWTRG<br>45 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN536<br>(0x0430) | ADC12B0<br>_HWTRG<br>46 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU1_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN537<br>(0x0432) | ADC12B0<br>_HWTRG<br>47 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU2_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN538<br>(0x0434) | ADC12B0<br>_HWTRG<br>48 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0  | OCU9_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN539<br>(0x0436) | ADC12B0<br>_HWTRG<br>49 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN540<br>(0x0438) | ADC12B0<br>_HWTRG<br>50 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN541<br>(0x043A) | ADC12B0<br>_HWTRG<br>51 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU1_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN542<br>(0x043C) | ADC12B0<br>_HWTRG<br>52 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU2_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN543<br>(0x043E) | ADC12B0<br>_HWTRG<br>53 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU8_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |



| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |               |                |    |    |                |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|---------------|----------------|----|----|----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3             | 4              | 5  | 6  | 7              |
|                              |                         |                                      | 8                         | 9               | 10              | 11            | 12             | 13 | 14 | 15             |
| RIC_RE<br>SIN544<br>(0x0440) | ADC12B0<br>_HWTRG<br>54 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0 | OCU10_<br>OTD0 | -  | -  | -              |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -  | -  | -              |
| RIC_RE<br>SIN545<br>(0x0442) | ADC12B0<br>_HWTRG<br>55 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0 | OCU0_<br>OTD0  | -  | -  | -              |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -  | -  | -              |
| RIC_RE<br>SIN546<br>(0x0444) | ADC12B0<br>_HWTRG<br>56 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0 | OCU1_<br>OTD0  | -  | -  | -              |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -  | -  | -              |
| RIC_RE<br>SIN547<br>(0x0446) | ADC12B0<br>_HWTRG<br>57 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0 | OCU2_<br>OTD0  | -  | -  | PPG0_T<br>OUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -  | -  | -              |
| RIC_RE<br>SIN548<br>(0x0448) | ADC12B0<br>_HWTRG<br>58 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0 | OCU8_<br>OTD0  | -  | -  | PPG0_T<br>OUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -  | -  | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -  | -  | -              |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |               |    |                |                |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|---------------|----|----------------|----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4             | 5  | 6              | 7              |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12            | 13 | 14             | 15             |
| RIC_RE<br>SIN549<br>(0x044A) | ADC12B0<br>_HWTRG<br>59 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU9_<br>OTD0 | -  | -              | PPG1_T<br>OUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -              | -              |
| RIC_RE<br>SIN550<br>(0x044C) | ADC12B0<br>_HWTRG<br>60 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_<br>FSET   | RLT1_<br>FSET   | OCU0_<br>OTD0  | OCU1_<br>OTD0 | -  | -              | PPG1_T<br>OUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -              | -              |
| RIC_RE<br>SIN551<br>(0x044E) | ADC12B0<br>_HWTRG<br>61 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_<br>FSET   | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU2_<br>OTD0 | -  | PPG0_T<br>OUT0 | PPG2_T<br>OUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -              | -              |
| RIC_RE<br>SIN552<br>(0x0450) | ADC12B0<br>_HWTRG<br>62 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU8_<br>OTD0 | -  | PPG0_T<br>OUT2 | PPG2_T<br>OUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -              | -              |
| RIC_RE<br>SIN553<br>(0x0452) | ADC12B0<br>_HWTRG<br>63 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_<br>FSET   | OCU8_<br>OTD0  | OCU9_<br>OTD0 | -  | PPG1_T<br>OUT0 | PPG3_<br>OUT0  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -              | -              |

| Register<br>(Offset)         | Resource               | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |               |                |                |                |                |
|------------------------------|------------------------|--------------------------------------|---------------------------|-----------------|-----------------|---------------|----------------|----------------|----------------|----------------|
|                              |                        |                                      | 0                         | 1               | 2               | 3             | 4              | 5              | 6              | 7              |
|                              |                        |                                      | 8                         | 9               | 10              | 11            | 12             | 13             | 14             | 15             |
| RIC_RE<br>SIN554<br>(0x0454) | ADC12B1<br>_HWTRG<br>0 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0 | OCU1_<br>OTD0  | PPG0_T<br>OUT0 | PPG1_T<br>OUT2 | PPG3_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -              | -              | -              |
| RIC_RE<br>SIN555<br>(0x0456) | ADC12B1<br>_HWTRG<br>1 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0 | OCU2_<br>OTD0  | PPG0_T<br>OUT2 | PPG2_T<br>OUT0 | PPG4_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -              | -              | -              |
| RIC_RE<br>SIN556<br>(0x0458) | ADC12B1<br>_HWTRG<br>2 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0 | OCU8_<br>OTD0  | PPG1_T<br>OUT0 | PPG2_T<br>OUT2 | PPG4_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -              | -              | -              |
| RIC_RE<br>SIN557<br>(0x045A) | ADC12B1<br>_HWTRG<br>3 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0 | OCU9_<br>OTD0  | PPG1_T<br>OUT2 | PPG3_T<br>OUT0 | PPG5_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -              | -              | -              |
| RIC_RE<br>SIN558<br>(0x045C) | ADC12B1<br>_HWTRG<br>4 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0 | OCU10_<br>OTD0 | PPG2_T<br>OUT0 | PPG3_T<br>OUT2 | PPG5_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -              | -              | -              |

| Register<br>(Offset)         | Resource               | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                |                |                |
|------------------------------|------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|----------------|
|                              |                        |                                      | 0                         | 1               | 2               | 3              | 4              | 5              | 6              | 7              |
|                              |                        |                                      | 8                         | 9               | 10              | 11             | 12             | 13             | 14             | 15             |
| RIC_RE<br>SIN559<br>(0x045E) | ADC12B1<br>_HWTRG<br>5 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU0_<br>OTD0  | PPG2_T<br>OUT2 | PPG4_T<br>OUT0 | PPG6_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN560<br>(0x0460) | ADC12B1<br>_HWTRG<br>6 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU2_<br>OTD0  | PPG3_T<br>OUT0 | PPG4_T<br>OUT2 | PPG6_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN561<br>(0x0462) | ADC12B1<br>_HWTRG<br>7 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU8_<br>OTD0  | PPG3_T<br>OUT2 | PPG5_T<br>OUT0 | PPG7_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN562<br>(0x0464) | ADC12B1<br>_HWTRG<br>8 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU9_<br>OTD0  | PPG4_T<br>OUT0 | PPG5_T<br>OUT2 | PPG7_T<br>OUT2 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |
| RIC_RE<br>SIN563<br>(0x0466) | ADC12B1<br>_HWTRG<br>9 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU10_<br>OTD0 | PPG4_T<br>OUT2 | PPG6_T<br>OUT0 | PPG8_T<br>OUT0 |
|                              |                        | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -              |
|                              |                        | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -              |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                |                |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----------------|----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5              | 6              | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13             | 14             | 15              |
| RIC_RE<br>SIN564<br>(0x0468) | ADC12B1<br>_HWTRG<br>10 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU0_<br>OTD0  | PPG5_T<br>OUT0 | PPG6_T<br>OUT2 | PPG8_T<br>OUT2  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN565<br>(0x046A) | ADC12B1<br>_HWTRG<br>11 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU1_<br>OTD0  | PPG5_T<br>OUT2 | PPG7_T<br>OUT0 | PPG9_T<br>OUT0  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN566<br>(0x046C) | ADC12B1<br>_HWTRG<br>12 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0  | OCU8_<br>OTD0  | PPG6_T<br>OUT0 | PPG7_T<br>OUT2 | PPG9_T<br>OUT2  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN567<br>(0x046E) | ADC12B1<br>_HWTRG<br>13 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU9_<br>OTD0  | PPG6_T<br>OUT2 | PPG8_T<br>OUT0 | PPG10_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |
| RIC_RE<br>SIN568<br>(0x0470) | ADC12B1<br>_HWTRG<br>14 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU10_<br>OTD0 | PPG7_T<br>OUT0 | PPG8_T<br>OUT2 | PPG10_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -              | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -              | -               |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                |                 |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----------------|-----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5              | 6               | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13             | 14              | 15              |
| RIC_RE<br>SIN569<br>(0x0472) | ADC12B1<br>_HWTRG<br>15 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU0_<br>OTD0  | PPG7_T<br>OUT2 | PPG9_T<br>OUT0  | PPG11_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN570<br>(0x0474) | ADC12B1<br>_HWTRG<br>16 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU1_<br>OTD0  | PPG8_T<br>OUT0 | PPG9_T<br>OUT2  | PPG11_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN571<br>(0x0476) | ADC12B1<br>_HWTRG<br>17 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU2_<br>OTD0  | PPG8_T<br>OUT2 | PPG10_<br>TOUT0 | PPG12_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN572<br>(0x0478) | ADC12B1<br>_HWTRG<br>18 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU9_<br>OTD0  | PPG9_T<br>OUT0 | PPG10_<br>TOUT2 | PPG12_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |
| RIC_RE<br>SIN573<br>(0x047A) | ADC12B1<br>_HWTRG<br>19 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU10_<br>OTD0 | PPG9_T<br>OUT2 | PPG11_<br>TOUT0 | PPG13_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -              | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -              | -               | -               |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |                 |                 |                 |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|-----------------|-----------------|-----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5               | 6               | 7               |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13              | 14              | 15              |
| RIC_RE<br>SIN574<br>(0x047C) | ADC12B1<br>_HWTRG<br>20 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU0_<br>OTD0  | PPG10_<br>TOUT0 | PPG11_<br>TOUT2 | PPG13_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN575<br>(0x047E) | ADC12B1<br>_HWTRG<br>21 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU1_<br>OTD0  | PPG10_<br>TOUT2 | PPG12_<br>TOUT0 | PPG14_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN576<br>(0x0480) | ADC12B1<br>_HWTRG<br>22 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU2_<br>OTD0  | PPG11_<br>TOUT0 | PPG12_<br>TOUT2 | PPG14_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN577<br>(0x0482) | ADC12B1<br>_HWTRG<br>23 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU8_<br>OTD0  | PPG11_<br>TOUT2 | PPG13_<br>TOUT0 | PPG15_<br>TOUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |
| RIC_RE<br>SIN578<br>(0x0484) | ADC12B1<br>_HWTRG<br>24 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0  | OCU10_<br>OTD0 | PPG12_<br>TOUT0 | PPG13_<br>TOUT2 | PPG15_<br>TOUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -               | -               | -               |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -               | -               | -               |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |               |                 |                 |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|---------------|-----------------|-----------------|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4             | 5               | 6               | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12            | 13              | 14              | 15 |
| RIC_RE<br>SIN579<br>(0x0486) | ADC12B1<br>_HWTRG<br>25 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU0_<br>OTD0 | PPG12_<br>TOUT2 | PPG14_<br>TOUT0 | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -               | -  |
| RIC_RE<br>SIN580<br>(0x0488) | ADC12B1<br>_HWTRG<br>26 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU1_<br>OTD0 | PPG13_<br>TOUT0 | PPG14_<br>TOUT2 | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -               | -  |
| RIC_RE<br>SIN581<br>(0x048A) | ADC12B1<br>_HWTRG<br>27 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU2_<br>OTD0 | PPG13_<br>TOUT2 | PPG15_<br>TOUT0 | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -               | -  |
| RIC_RE<br>SIN582<br>(0x048C) | ADC12B1<br>_HWTRG<br>28 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU8_<br>OTD0 | PPG14_<br>TOUT0 | PPG15_<br>TOUT2 | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -               | -  |
| RIC_RE<br>SIN583<br>(0x048E) | ADC12B1<br>_HWTRG<br>29 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU9_<br>OTD0 | PPG14_<br>TOUT2 | -               | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -               | -               | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -               | -               | -  |



| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |               |                |                 |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|---------------|----------------|-----------------|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3             | 4              | 5               | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11            | 12             | 13              | 14 | 15 |
| RIC_RE<br>SIN584<br>(0x0490) | ADC12B1<br>_HWTRG<br>30 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0 | OCU1_<br>OTD0  | PPG15_<br>TOUT0 | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -  | -  |
| RIC_RE<br>SIN585<br>(0x0492) | ADC12B1<br>_HWTRG<br>31 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0 | OCU2_<br>OTD0  | PPG15_<br>TOUT2 | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -  | -  |
| RIC_RE<br>SIN586<br>(0x0494) | ADC12B1<br>_HWTRG<br>32 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0 | OCU8_<br>OTD0  | -               | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -  | -  |
| RIC_RE<br>SIN587<br>(0x0496) | ADC12B1<br>_HWTRG<br>33 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0 | OCU9_<br>OTD0  | -               | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -  | -  |
| RIC_RE<br>SIN588<br>(0x0498) | ADC12B1<br>_HWTRG<br>34 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0 | OCU10_<br>OTD0 | -               | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -              | -               | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -              | -               | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN589<br>(0x049A) | ADC12B1<br>_HWTRG<br>35 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN590<br>(0x049C) | ADC12B1<br>_HWTRG<br>36 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_<br>FSET   | RLT1_<br>FSET   | OCU0_<br>OTD0  | OCU2_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN591<br>(0x049E) | ADC12B1<br>_HWTRG<br>37 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_<br>FSET   | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU8_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN592<br>(0x04A0) | ADC12B1<br>_HWTRG<br>38 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU9_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN593<br>(0x04A2) | ADC12B1<br>_HWTRG<br>39 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_<br>FSET   | OCU8_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN594<br>(0x04A4) | ADC12B1<br>_HWTRG<br>40 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN595<br>(0x04A6) | ADC12B1<br>_HWTRG<br>41 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU1_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN596<br>(0x04A8) | ADC12B1<br>_HWTRG<br>42 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_U<br>FSET  | OCU0_<br>OTD0  | OCU8_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN597<br>(0x04AA) | ADC12B1<br>_HWTRG<br>43 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU9_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN598<br>(0x04AC) | ADC12B1<br>_HWTRG<br>44 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN599<br>(0x04AE) | ADC12B1<br>_HWTRG<br>45 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU0_<br>OTD0  | -  | -  | -- |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN600<br>(0x04B0) | ADC12B1<br>_HWTRG<br>46 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU1_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN601<br>(0x04B2) | ADC12B1<br>_HWTRG<br>47 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU2_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN602<br>(0x04B4) | ADC12B1<br>_HWTRG<br>48 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0  | OCU9_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN603<br>(0x04B6) | ADC12B1<br>_HWTRG<br>49 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |                |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|----------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4              | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12             | 13 | 14 | 15 |
| RIC_RE<br>SIN604<br>(0x04B8) | ADC12B1<br>_HWTRG<br>50 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU0_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN605<br>(0x04BA) | ADC12B1<br>_HWTRG<br>51 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_<br>FSET   | OCU8_<br>OTD0  | OCU1_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN606<br>(0x04BC) | ADC12B1<br>_HWTRG<br>52 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_<br>FSET   | RLT16_<br>UFSET | OCU9_<br>OTD0  | OCU2_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN607<br>(0x04BE) | ADC12B1<br>_HWTRG<br>53 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_<br>FSET   | RLT17_<br>UFSET | OCU10_<br>OTD0 | OCU8_<br>OTD0  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |
| RIC_RE<br>SIN608<br>(0x04C0) | ADC12B1<br>_HWTRG<br>54 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT0_<br>FSET   | OCU0_<br>OTD0  | OCU10_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -              | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -              | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |                |               |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|----------------|---------------|----|----|----|
|                              |                         |                                      | 0                         | 1               | 2               | 3              | 4             | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9               | 10              | 11             | 12            | 13 | 14 | 15 |
| RIC_RE<br>SIN609<br>(0x04C2) | ADC12B1<br>_HWTRG<br>55 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT1_U<br>FSET  | OCU1_<br>OTD0  | OCU0_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -  | -  |
| RIC_RE<br>SIN610<br>(0x04C4) | ADC12B1<br>_HWTRG<br>56 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT17_<br>UFSET | OCU2_<br>OTD0  | OCU1_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -  | -  |
| RIC_RE<br>SIN611<br>(0x04C6) | ADC12B1<br>_HWTRG<br>57 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT0_U<br>FSET  | OCU8_<br>OTD0  | OCU2_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -  | -  |
| RIC_RE<br>SIN612<br>(0x04C8) | ADC12B1<br>_HWTRG<br>58 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT1_U<br>FSET  | OCU9_<br>OTD0  | OCU8_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -  | -  |
| RIC_RE<br>SIN613<br>(0x04CA) | ADC12B1<br>_HWTRG<br>59 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT16_<br>UFSET | OCU10_<br>OTD0 | OCU9_<br>OTD0 | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -              | -             | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -              | -             | -  | -  | -  |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                 |                 |               |               |    |                |                |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-----------------|-----------------|---------------|---------------|----|----------------|----------------|
|                              |                         |                                      | 0                         | 1               | 2               | 3             | 4             | 5  | 6              | 7              |
|                              |                         |                                      | 8                         | 9               | 10              | 11            | 12            | 13 | 14             | 15             |
| RIC_RE<br>SIN614<br>(0x04CC) | ADC12B1<br>_HWTRG<br>60 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT0_U<br>FSET  | RLT1_U<br>FSET  | OCU0_<br>OTD0 | OCU1_<br>OTD0 | -  | -              | PPG1_T<br>OUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -  | -              | -              |
| RIC_RE<br>SIN615<br>(0x04CE) | ADC12B1<br>_HWTRG<br>61 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT1_U<br>FSET  | RLT16_<br>UFSET | OCU1_<br>OTD0 | OCU2_<br>OTD0 | -  | PPG0_T<br>OUT0 | PPG2_T<br>OUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -  | -              | -              |
| RIC_RE<br>SIN616<br>(0x04D0) | ADC12B1<br>_HWTRG<br>62 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT16_<br>UFSET | RLT17_<br>UFSET | OCU2_<br>OTD0 | OCU8_<br>OTD0 | -  | PPG0_T<br>OUT2 | PPG2_T<br>OUT2 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -  | -              | -              |
| RIC_RE<br>SIN617<br>(0x04D2) | ADC12B1<br>_HWTRG<br>63 | RESSEL<br>(0-7)                      | PORT_<br>PIN              | RLT17_<br>UFSET | RLT0_U<br>FSET  | OCU8_<br>OTD0 | OCU9_<br>OTD0 | -  | PPG1_T<br>OUT0 | PPG3_T<br>OUT0 |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -               | -               | -             | -             | -  | -              | -              |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -               | -               | -             | -             | -  | -              | -              |

| Register<br>(Offset)         | Resource                | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |       |    |    |    |    |    |
|------------------------------|-------------------------|--------------------------------------|---------------------------|-------|-------|----|----|----|----|----|
|                              |                         |                                      | 0                         | 1     | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |                         |                                      | 8                         | 9     | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN626<br>(0x04E4) | DDRHSS<br>PI_MSTA<br>RT | RESSEL<br>(0-7)                      | -                         | TOT0  | TOT16 | -  | -  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN629<br>(0x04EA) | MDIO                    | RESSEL<br>(0-7)                      | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | P0_31                     | P3_06 | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN630<br>(0x04EC) | CRS                     | RESSEL<br>(0-7)                      | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | P1_02                     | P0_20 | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN631<br>(0x04EE) | RXD0                    | RESSEL<br>(0-7)                      | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | P0_27                     | P3_04 | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN632<br>(0x04F0) | RXD1                    | RESSEL<br>(0-7)                      | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | RESSEL<br>(8-15)                     | -                         | -     | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (0-7)                    | P0_28                     | P4_06 | -     | -  | -  | -  | -  | -  |
|                              |                         | PORTSE<br>L (8-15)                   | -                         | -     | -     | -  | -  | -  | -  | -  |



| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |    |    |    |    |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|----|----|----|----|----|----|
|                              |          |                                      | 0                         | 1     | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN633<br>(0x04F2) | RXD2     | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_29                     | P4_07 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN634<br>(0x04F4) | RXD3     | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_30                     | P3_05 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN635<br>(0x04F6) | COL      | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P1_01                     | P0_19 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN636<br>(0x04F8) | RXDV     | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_19                     | P4_02 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN637<br>(0x04FA) | RXER     | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_18                     | P4_01 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |       |    |    |    |    |    |    |
|------------------------------|----------|--------------------------------------|---------------------------|-------|----|----|----|----|----|----|
|                              |          |                                      | 0                         | 1     | 2  | 3  | 4  | 5  | 6  | 7  |
|                              |          |                                      | 8                         | 9     | 10 | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN638<br>(0x04FC) | RXCLK    | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_17                     | P4_00 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN639<br>(0x04FE) | TXCLK    | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_20                     | P4_03 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN643<br>(0x0506) | I2S0_WS  | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_12                     | P3_26 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN644<br>(0x0508) | I2S0_SD  | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_11                     | P3_25 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN645<br>(0x050A) | I2S0_SCK | RESSEL<br>(0-7)                      | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | RESSEL<br>(8-15)                     | -                         | -     | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (0-7)                    | P0_13                     | P3_27 | -  | -  | -  | -  | -  | -  |
|                              |          | PORTSE<br>L (8-15)                   | -                         | -     | -  | -  | -  | -  | -  | -  |

| Register<br>(Offset)         | Resource  | RESSEL<br>[3:0]<br>/PORT<br>SEL[3:0] | Source for Resource Input |                       |       |    |    |    |    |    |
|------------------------------|-----------|--------------------------------------|---------------------------|-----------------------|-------|----|----|----|----|----|
|                              |           |                                      | 0                         | 1                     | 2     | 3  | 4  | 5  | 6  | 7  |
|                              |           |                                      | 8                         | 9                     | 10    | 11 | 12 | 13 | 14 | 15 |
| RIC_RE<br>SIN646<br>(0x050C) | I2S0_ECLK | RESSEL<br>(0-7)                      | PORT_<br>PIN              | SYSC1_<br>CLK_C<br>D4 | -     | -  | -  | -  | -  | -  |
|                              |           | RESSEL<br>(8-15)                     | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (0-7)                    | P0_10                     | P3_24                 | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (8-15)                   | -                         | -                     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN650<br>(0x0514) | I2S1_ECLK | RESSEL<br>(0-7)                      | PORT_<br>PIN              | SYSC1_<br>CLK_C<br>D4 | -     | -  | -  | -  | -  | -  |
|                              |           | RESSEL<br>(8-15)                     | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (0-7)                    | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (8-15)                   | -                         | -                     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN685<br>(0x055A) | ADTRG0    | RESSEL<br>(0-7)                      | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | RESSEL<br>(8-15)                     | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (0-7)                    | P1_16                     | P2_10                 | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (8-15)                   | -                         | -                     | -     | -  | -  | -  | -  | -  |
| RIC_RE<br>SIN686<br>(0x055C) | ADTRG1    | RESSEL<br>(0-7)                      | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | RESSEL<br>(8-15)                     | -                         | -                     | -     | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (0-7)                    | P4_22                     | P1_08                 | P2_11 | -  | -  | -  | -  | -  |
|                              |           | PORTSE<br>L (8-15)                   | -                         | -                     | -     | -  | -  | -  | -  | -  |

**Notes:**

- When both GPIO\_PORTEN.GPORTEN and PPC\_PCFGR.PIE are configured as 0, the input signal is disconnected and external interrupt cannot be detected. During disconnecting, I/O internally outputs "low" to internal logic, and if ELVR is configured as low-level-detection, falling-edge-detection, or both-edge-detection it will be detected as external interrupt with EIRR = 1.
- "Set 0" (Set 1) means that "0" ("1") is inputted.
- OCUX\_MODn is described as MODn pin in Traveo™ Platform Hardware Manual.

## 7.2 Port Output Function Configuration

The port output function configuration (POF) is a function to select a function to output to a port.

A resource which supports a port output relocation has its PPC\_PCFGR.POF to configure resource output.

### 7.2.1 Standard Configuration (S6J3310)

| Register<br>(Offset)         | Port  | Resource Functional Outputs |              |         |                             |                           |               |                  |         |
|------------------------------|-------|-----------------------------|--------------|---------|-----------------------------|---------------------------|---------------|------------------|---------|
|                              |       | POF = 0                     | POF = 1      | POF = 2 | POF = 3                     | POF = 4                   | POF = 5       | POF = 6          | POF = 7 |
| PPC_PCF<br>GR000<br>(0x0000) | P0_00 | GPIO_PO<br>DR0:POD<br>00    | -            | LCDD5   | -                           | -                         | DSP0_R7<br>_0 | -                | MAD1    |
| PPC_PCF<br>GR001<br>(0x0002) | P0_01 | GPIO_PO<br>DR0:POD<br>01    | -            | LCDD6   | ARH0_AI<br>C1_DNCL<br>K     | -                         | DSP0_G0<br>_0 | -                | MAD2    |
| PPC_PCF<br>GR002<br>(0x0004) | P0_02 | GPIO_PO<br>DR0:POD<br>02    | SCK1_0       | LCDD7   | ARH0_AI<br>C1_TDA1          | ARH0_AI<br>C1_DND<br>ATA1 | DSP0_G1<br>_0 | SCL1             | MAD3    |
| PPC_PCF<br>GR003<br>(0x0006) | P0_03 | GPIO_PO<br>DR0:POD<br>03    | SOT1_0       | LCDD8   | ARH0_AI<br>C1_dbg_<br>out_1 | -                         | DSP0_G2<br>_0 | SDA1             | MAD4    |
| PPC_PCF<br>GR004<br>(0x0008) | P0_04 | GPIO_PO<br>DR0:POD<br>04    | SCS10_0      | LCDD9   | ARH0_AI<br>C1_dbg_<br>out_0 | -                         | DSP0_G3<br>_0 | -                | MAD5    |
| PPC_PCF<br>GR005<br>(0x000A) | P0_05 | GPIO_PO<br>DR0:POD<br>05    | SCS11_0      | LCDD10  | ARH0_AI<br>C1_TDA0          | ARH0_AI<br>C1_DND<br>ATA0 | DSP0_G4<br>_0 | SOT0_1           | MAD6    |
| PPC_PCF<br>GR006<br>(0x000C) | P0_06 | GPIO_PO<br>DR0:POD<br>06    | SCS12_0      | LCDD11  | SCK0_1                      | -                         | DSP0_G5<br>_0 | PPG0_TO<br>UT0_1 | MAD7    |
| PPC_PCF<br>GR007<br>(0x000E) | P0_07 | GPIO_PO<br>DR0:POD<br>07    | SCS13_0      | LCDD12  | SCS00_1                     | I2S1_SD_<br>0             | DSP0_G6<br>_0 | PPG0_TO<br>UT2_1 | MAD8    |
| PPC_PCF<br>GR008<br>(0x0010) | P0_08 | GPIO_PO<br>DR0:POD<br>08    | -            | LCDD13  | -                           | I2S1_WS<br>_0             | DSP0_G7<br>_0 | PPG1_TO<br>UT0_1 | MAD9    |
| PPC_PCF<br>GR009<br>(0x0012) | P0_09 | GPIO_PO<br>DR0:POD<br>09    | -            | LCDD14  | ARH0_AI<br>C0_DNCL<br>K     | I2S1_SC<br>K_0            | DSP0_B0<br>_0 | PPG1_TO<br>UT2_1 | MAD10   |
| PPC_PCF<br>GR010<br>(0x0014) | P0_10 | GPIO_PO<br>DR0:POD<br>10    | SCS171_<br>1 | LCDD15  | ARH0_AI<br>C0_TDA1          | ARH0_AI<br>C0_DND<br>ATA1 | DSP0_B1<br>_0 | PPG2_TO<br>UT0_1 | MAD11   |
| PPC_PCF<br>GR011<br>(0x0016) | P0_11 | GPIO_PO<br>DR0:POD<br>11    | -            | LCDD16  | ARH0_AI<br>C0_dbg_<br>out_1 | I2S0_SD_<br>0             | DSP0_B2<br>_0 | PPG2_TO<br>UT2_1 | MAD12   |
| PPC_PCF<br>GR012<br>(0x0018) | P0_12 | GPIO_PO<br>DR0:POD<br>12    | -            | LCDD17  | ARH0_AI<br>C0_dbg_<br>out_0 | I2S0_WS<br>_0             | DSP0_B3<br>_0 | PPG3_TO<br>UT0_1 | MAD13   |
| PPC_PCF<br>GR013<br>(0x001A) | P0_13 | GPIO_PO<br>DR0:POD<br>13    | -            | CS#     | -                           | I2S0_SC<br>K_0            | DSP0_B4<br>_0 | PPG3_TO<br>UT2_1 | MAD14   |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |               |                |                    |                           |               |         |         |
|------------------------------|-------|-----------------------------|---------------|----------------|--------------------|---------------------------|---------------|---------|---------|
|                              |       | POF = 0                     | POF = 1       | POF = 2        | POF = 3            | POF = 4                   | POF = 5       | POF = 6 | POF = 7 |
| PPC_PCF<br>GR014<br>(0x001C) | P0_14 | GPIO_PO<br>DR0:POD<br>14    | -             | WR#            | -                  | -                         | DSP0_B5<br>_0 | SCK4_1  | MOEX    |
| PPC_PCF<br>GR015<br>(0x001E) | P0_15 | GPIO_PO<br>DR0:POD<br>15    | -             | RD#            | -                  | -                         | DSP0_B6<br>_0 | SCS40_1 | MWEX    |
| PPC_PCF<br>GR016<br>(0x0020) | P0_16 | GPIO_PO<br>DR0:POD<br>16    | DSP0_B7<br>_1 | -              | ARH0_AI<br>C0_TDA0 | ARH0_AI<br>C0_DND<br>ATA0 | -             | SCS41_1 | MCLK    |
| PPC_PCF<br>GR017<br>(0x0022) | P0_17 | GPIO_PO<br>DR0:POD<br>17    | -             | -              | -                  | -                         | DSP0_B7<br>_0 | SCS43_1 | MDQM0   |
| PPC_PCF<br>GR018<br>(0x0024) | P0_18 | GPIO_PO<br>DR0:POD<br>18    | -             | RS             | -                  | MDC_1                     | -             | -       | MCSX2   |
| PPC_PCF<br>GR019<br>(0x0026) | P0_19 | GPIO_PO<br>DR0:POD<br>19    | -             | RES#           | -                  | -                         | -             | -       | MCSX3   |
| PPC_PCF<br>GR020<br>(0x0028) | P0_20 | GPIO_PO<br>DR0:POD<br>20    | -             | -              | -                  | -                         | -             | -       | -       |
| PPC_PCF<br>GR021<br>(0x002A) | P0_21 | GPIO_PO<br>DR0:POD<br>21    | -             | M_SDATA<br>0_0 | TXEN_0             | M_DQ3                     | -             | -       | -       |
| PPC_PCF<br>GR022<br>(0x002C) | P0_22 | GPIO_PO<br>DR0:POD<br>22    | SCK2_0        | M_SDATA<br>0_2 | TXD0_0             | M_DQ2                     | SOT9_2        | -       | -       |
| PPC_PCF<br>GR023<br>(0x002E) | P0_23 | GPIO_PO<br>DR0:POD<br>23    | SOT2_0        | M_SDATA<br>0_1 | TXD1_0             | M_DQ1                     | SCK9_2        | -       | -       |
| PPC_PCF<br>GR024<br>(0x0030) | P0_24 | GPIO_PO<br>DR0:POD<br>24    | SCS20_0       | M_SSEL0        | TXD2_0             | M_DQ0                     | SCS90_2       | -       | -       |
| PPC_PCF<br>GR025<br>(0x0032) | P0_25 | GPIO_PO<br>DR0:POD<br>25    | SCS21_0       | M_SDATA<br>0_3 | TXD3_0             | M_CS#_1                   | SCS91_2       | -       | -       |
| PPC_PCF<br>GR026<br>(0x0034) | P0_26 | GPIO_PO<br>DR0:POD<br>26    | SCS22_0       | M_SCLK0        | TXER_0             | M_CK                      | -             | -       | -       |
| PPC_PCF<br>GR027<br>(0x0036) | P0_27 | GPIO_PO<br>DR0:POD<br>27    | SCS23_0       | M_SDATA<br>1_0 | -                  | M_RWDS                    | -             | -       | -       |
| PPC_PCF<br>GR028<br>(0x0038) | P0_28 | GPIO_PO<br>DR0:POD<br>28    | -             | M_SDATA<br>1_2 | -                  | M_DQ4                     | SCK8_2        | -       | -       |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |          |                  |          |                 |                  |                  |          |
|------------------------------|-------|-----------------------------|----------|------------------|----------|-----------------|------------------|------------------|----------|
|                              |       | POF = 0                     | POF = 1  | POF = 2          | POF = 3  | POF = 4         | POF = 5          | POF = 6          | POF = 7  |
| PPC_PCF<br>GR029<br>(0x003A) | P0_29 | GPIO_PO<br>DR0:POD<br>29    | SCK3_0   | M_SDATA<br>1_1   | -        | M_DQ5           | SOT8_2           | -                | -        |
| PPC_PCF<br>GR030<br>(0x003C) | P0_30 | GPIO_PO<br>DR0:POD<br>30    | SOT3_0   | M_SSEL1          | -        | M_DQ6           | SCS80_2          | -                | -        |
| PPC_PCF<br>GR031<br>(0x003E) | P0_31 | GPIO_PO<br>DR0:POD<br>31    | SCS30_0  | M_SDATA<br>1_3   | MDIO_0   | M_DQ7           | -                | -                | -        |
| PPC_PCF<br>GR100<br>(0x0040) | P1_00 | GPIO_PO<br>DR1:POD<br>00    | SCS31_0  | -                | MDC_0    | M_CS#_2         | -                | -                | -        |
| PPC_PCF<br>GR101<br>(0x0042) | P1_01 | GPIO_PO<br>DR1:POD<br>01    | SCS32_0  | -                | -        | -               | -                | -                | MLBSIG   |
| PPC_PCF<br>GR102<br>(0x0044) | P1_02 | GPIO_PO<br>DR1:POD<br>02    | SCS33_0  | -                | -        | -               | -                | -                | MLBDAT   |
| PPC_PCF<br>GR103<br>(0x0046) | P1_03 | GPIO_PO<br>DR1:POD<br>03    | -        | -                | -        | OCU0_O<br>TD0_0 | -                | PPG0_TO<br>UT0_0 | BN0(BL0) |
| PPC_PCF<br>GR104<br>(0x0048) | P1_04 | GPIO_PO<br>DR1:POD<br>04    | SCK0_0   | -                | SCL0     | OCU0_O<br>TD1_0 | TOT0_0           | PPG0_TO<br>UT2_0 | BP0(BH0) |
| PPC_PCF<br>GR105<br>(0x004A) | P1_05 | GPIO_PO<br>DR1:POD<br>05    | SOT0_0   | SGA0_0           | SDA0     | TRACE0_0        | -                | PPG1_TO<br>UT0_0 | AN0(AL0) |
| PPC_PCF<br>GR106<br>(0x004C) | P1_06 | GPIO_PO<br>DR1:POD<br>06    | SCS00_0  | SGO0_0           | TX0_0    | TRACE1_0        | TOT1_0           | PPG1_TO<br>UT2_0 | AP0(AH0) |
| PPC_PCF<br>GR107<br>(0x004E) | P1_07 | GPIO_PO<br>DR1:POD<br>07    | -        | SGA1_0           | TRACE2_0 | OCU1_O<br>TD0_0 | -                | PPG2_TO<br>UT0_0 | BN1(BL1) |
| PPC_PCF<br>GR108<br>(0x0050) | P1_08 | GPIO_PO<br>DR1:POD<br>08    | TRACE3_0 | SGO1_0           | TX1_0    | OCU1_O<br>TD1_0 | TOT16_0          | PPG2_TO<br>UT2_0 | BP1(BH1) |
| PPC_PCF<br>GR109<br>(0x0052) | P1_09 | GPIO_PO<br>DR1:POD<br>09    | SCK16_0  | SGA2_0           | SCL16    | OCU2_O<br>TD0_0 | TRACE_0<br>CTL_0 | PPG3_TO<br>UT0_0 | AN1(AL1) |
| PPC_PCF<br>GR110<br>(0x0054) | P1_10 | GPIO_PO<br>DR1:POD<br>10    | SOT16_0  | SGO2_0           | SDA16    | OCU2_O<br>TD1_0 | TRACE_0<br>CLK_0 | PPG3_TO<br>UT2_0 | AP1(AH1) |
| PPC_PCF<br>GR111<br>(0x0056) | P1_11 | GPIO_PO<br>DR1:POD<br>11    | SCS160_0 | INDICAT<br>OR0_0 | -        | OCU8_O<br>TD0_0 | -                | PPG4_TO<br>UT0_0 | -        |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |                 |         |         |                  |         |                   |                  |
|------------------------------|-------|-----------------------------|-----------------|---------|---------|------------------|---------|-------------------|------------------|
|                              |       | POF = 0                     | POF = 1         | POF = 2 | POF = 3 | POF = 4          | POF = 5 | POF = 6           | POF = 7          |
| PPC_PCF<br>GR112<br>(0x0058) | P1_12 | GPIO_PO<br>DR1:POD<br>12    | SCS161_<br>0    | -       | -       | OCU8_O<br>TD1_0  | TOT17_0 | PPG4_TO<br>UT2_0  | TX2_0            |
| PPC_PCF<br>GR113<br>(0x005A) | P1_13 | GPIO_PO<br>DR1:POD<br>13    | -               | SGA3_0  | -       | OCU9_O<br>TD0_0  | -       | -                 | -                |
| PPC_PCF<br>GR114<br>(0x005C) | P1_14 | GPIO_PO<br>DR1:POD<br>14    | SYSC0_C<br>LK_1 | SGO3_0  | -       | OCU9_O<br>TD1_0  | TOT48_0 | PPG5_TO<br>UT0_0  | TX3_0            |
| PPC_PCF<br>GR115<br>(0x005E) | P1_15 | GPIO_PO<br>DR1:POD<br>15    | SCK17_0         | SGA4_0  | SCL17   | OCU10_<br>OTD0_0 | SCK12_1 | PPG5_TO<br>UT2_0  | INDICAT<br>OR0_1 |
| PPC_PCF<br>GR116<br>(0x0060) | P1_16 | GPIO_PO<br>DR1:POD<br>16    | SOT17_0         | SGO4_0  | SDA17   | OCU10_<br>OTD1_0 | TOT49_0 | SYSC0_C<br>LK_0   | WOT              |
| PPC_PCF<br>GR117<br>(0x0062) | P1_17 | GPIO_PO<br>DR1:POD<br>17    | SCS170_<br>0    | -       | -       | -                | PWM1P0  | PPG6_TO<br>UT0_0  | -                |
| PPC_PCF<br>GR118<br>(0x0064) | P1_18 | GPIO_PO<br>DR1:POD<br>18    | SCS171_<br>0    | -       | -       | -                | PWM1M0  | PPG6_TO<br>UT2_0  | TX5_0            |
| PPC_PCF<br>GR119<br>(0x0066) | P1_19 | GPIO_PO<br>DR1:POD<br>19    | -               | -       | -       | -                | PWM2P0  | PPG7_TO<br>UT0_0  | -                |
| PPC_PCF<br>GR120<br>(0x0068) | P1_20 | GPIO_PO<br>DR1:POD<br>20    | SCK8_0          | -       | SCL8    | -                | PWM2M0  | PPG7_TO<br>UT2_0  | -                |
| PPC_PCF<br>GR121<br>(0x006A) | P1_21 | GPIO_PO<br>DR1:POD<br>21    | SOT8_0          | -       | SDA8    | -                | PWM1P1  | PPG8_TO<br>UT0_0  | -                |
| PPC_PCF<br>GR122<br>(0x006C) | P1_22 | GPIO_PO<br>DR1:POD<br>22    | SCS80_0         | -       | -       | -                | PWM1M1  | PPG8_TO<br>UT2_0  | TX6_0            |
| PPC_PCF<br>GR123<br>(0x006E) | P1_23 | GPIO_PO<br>DR1:POD<br>23    | -               | -       | -       | -                | PWM2P1  | PPG9_TO<br>UT0_0  | -                |
| PPC_PCF<br>GR124<br>(0x0070) | P1_24 | GPIO_PO<br>DR1:POD<br>24    | SCK9_0          | -       | SCL9    | -                | PWM2M1  | PPG9_TO<br>UT2_0  | -                |
| PPC_PCF<br>GR125<br>(0x0072) | P1_25 | GPIO_PO<br>DR1:POD<br>25    | SOT9_0          | -       | SDA9    | -                | PWM1P2  | PPG10_T<br>OUT0_0 | -                |
| PPC_PCF<br>GR126<br>(0x0074) | P1_26 | GPIO_PO<br>DR1:POD<br>26    | SCS90_0         | -       | -       | -                | PWM1M2  | PPG10_T<br>OUT2_0 | -                |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |          |         |         |         |           |                   |         |
|------------------------------|-------|-----------------------------|----------|---------|---------|---------|-----------|-------------------|---------|
|                              |       | POF = 0                     | POF = 1  | POF = 2 | POF = 3 | POF = 4 | POF = 5   | POF = 6           | POF = 7 |
| PPC_PCF<br>GR127<br>(0x0076) | P1_27 | GPIO_PO<br>DR1:POD<br>27    | SCS91_0  | -       | -       | -       | PWM2P2    | PPG11_T<br>OUT0_0 | -       |
| PPC_PCF<br>GR128<br>(0x0078) | P1_28 | GPIO_PO<br>DR1:POD<br>28    | -        | -       | -       | -       | PWM2M2    | PPG11_T<br>OUT2_0 | -       |
| PPC_PCF<br>GR129<br>(0x007A) | P1_29 | GPIO_PO<br>DR1:POD<br>29    | SCK10_0  | -       | SCL10   | -       | PWM1P3    | -                 | -       |
| PPC_PCF<br>GR130<br>(0x007C) | P1_30 | GPIO_PO<br>DR1:POD<br>30    | SOT10_0  | -       | SDA10   | -       | PWM1M3    | PPG12_T<br>OUT0_0 | -       |
| PPC_PCF<br>GR131<br>(0x007E) | P1_31 | GPIO_PO<br>DR1:POD<br>31    | SCS100_0 | -       | -       | -       | PWM2P3    | PPG12_T<br>OUT2_0 | -       |
| PPC_PCF<br>GR200<br>(0x0080) | P2_00 | GPIO_PO<br>DR2:POD<br>00    | -        | -       | -       | -       | PWM2M3    | PPG13_T<br>OUT0_0 | -       |
| PPC_PCF<br>GR201<br>(0x0082) | P2_01 | GPIO_PO<br>DR2:POD<br>01    | SCK11_0  | -       | SCL11   | -       | PWM1P4    | PPG13_T<br>OUT2_0 | -       |
| PPC_PCF<br>GR202<br>(0x0084) | P2_02 | GPIO_PO<br>DR2:POD<br>02    | SOT11_0  | -       | SDA11   | -       | PWM1M4    | PPG14_T<br>OUT0_0 | -       |
| PPC_PCF<br>GR203<br>(0x0086) | P2_03 | GPIO_PO<br>DR2:POD<br>03    | SCS110_0 | -       | -       | -       | PWM2P4    | PPG14_T<br>OUT2_0 | -       |
| PPC_PCF<br>GR204<br>(0x0088) | P2_04 | GPIO_PO<br>DR2:POD<br>04    | SCS111_0 | -       | -       | -       | PWM2M4    | PPG15_T<br>OUT0_0 | -       |
| PPC_PCF<br>GR205<br>(0x008A) | P2_05 | GPIO_PO<br>DR2:POD<br>05    | -        | -       | -       | -       | PWM1P5    | PPG15_T<br>OUT2_0 | -       |
| PPC_PCF<br>GR206<br>(0x008C) | P2_06 | GPIO_PO<br>DR2:POD<br>06    | SCK12_0  | -       | SCL12   | -       | PWM1M5    | -                 | -       |
| PPC_PCF<br>GR207<br>(0x008E) | P2_07 | GPIO_PO<br>DR2:POD<br>07    | SOT12_0  | -       | SDA12   | -       | PWM2P5    | -                 | -       |
| PPC_PCF<br>GR208<br>(0x0090) | P2_08 | GPIO_PO<br>DR2:POD<br>08    | SCS120_0 | -       | -       | -       | PWM2M5    | -                 | -       |
| PPC_PCF<br>GR209<br>(0x0092) | P2_09 | GPIO_PO<br>DR2:POD<br>09    | SCS23_1  | -       | -       | -       | DSP0_EN_0 | PPG14_T<br>OUT0_1 | MCSX0   |



| Register<br>(Offset)         | Port  | Resource Functional Outputs |         |         |         |         |                  |                  |         |
|------------------------------|-------|-----------------------------|---------|---------|---------|---------|------------------|------------------|---------|
|                              |       | POF = 0                     | POF = 1 | POF = 2 | POF = 3 | POF = 4 | POF = 5          | POF = 6          | POF = 7 |
| PPC_PCF<br>GR210<br>(0x0094) | P2_10 | GPIO_PO<br>DR2:POD<br>10    | SCS31_1 | -       | -       | -       | DSP0_HS<br>YNC_0 | -                | MCSX1   |
| PPC_PCF<br>GR211<br>(0x0096) | P2_11 | GPIO_PO<br>DR2:POD<br>11    | SCS32_1 | -       | -       | -       | DSP0_VS<br>YNC_0 | -                | MDATA0  |
| PPC_PCF<br>GR212<br>(0x0098) | P2_12 | GPIO_PO<br>DR2:POD<br>12    | SCS33_1 | -       | -       | -       | DSP0_CL<br>K_0   | -                | MDATA1  |
| PPC_PCF<br>GR213<br>(0x009A) | P2_13 | GPIO_PO<br>DR2:POD<br>13    | -       | -       | -       | -       | DSP0_R0<br>_0    | -                | MDATA2  |
| PPC_PCF<br>GR214<br>(0x009C) | P2_14 | GPIO_PO<br>DR2:POD<br>14    | SCK4_0  | -       | SCL4    | -       | DSP0_R1<br>_0    | -                | MDATA3  |
| PPC_PCF<br>GR215<br>(0x009E) | P2_15 | GPIO_PO<br>DR2:POD<br>15    | SOT4_0  | LCDD0   | SDA4    | -       | DSP0_R2<br>_0    | -                | MDATA4  |
| PPC_PCF<br>GR216<br>(0x00A0) | P2_16 | GPIO_PO<br>DR2:POD<br>16    | SCS40_0 | LCDD1   | -       | -       | DSP0_R3<br>_0    | -                | MDATA5  |
| PPC_PCF<br>GR217<br>(0x00A2) | P2_17 | GPIO_PO<br>DR2:POD<br>17    | SCS41_0 | LCDD2   | -       | -       | DSP0_R4<br>_0    | -                | MDATA6  |
| PPC_PCF<br>GR218<br>(0x00A4) | P2_18 | GPIO_PO<br>DR2:POD<br>18    | SCS42_0 | LCDD3   | -       | -       | DSP0_R5<br>_0    | -                | MDATA7  |
| PPC_PCF<br>GR219<br>(0x00A6) | P2_19 | GPIO_PO<br>DR2:POD<br>19    | SCS43_0 | LCDD4   | -       | -       | DSP0_R6<br>_0    | -                | MAD0    |
| PPC_PCF<br>GR300<br>(0x00C0) | P3_00 | GPIO_PO<br>DR3:POD<br>00    | -       | TXD1_1  | -       | -       | -                | PPG4_TO<br>UT0_1 | MAD15   |
| PPC_PCF<br>GR301<br>(0x00C2) | P3_01 | GPIO_PO<br>DR3:POD<br>01    | SCK1_1  | TXD2_1  | -       | -       | -                | PPG4_TO<br>UT2_1 | MAD16   |
| PPC_PCF<br>GR302<br>(0x00C4) | P3_02 | GPIO_PO<br>DR3:POD<br>02    | SOT1_1  | TXD3_1  | -       | -       | -                | PPG5_TO<br>UT0_1 | MAD17   |
| PPC_PCF<br>GR303<br>(0x00C6) | P3_03 | GPIO_PO<br>DR3:POD<br>03    | SCS10_1 | TXER_1  | -       | -       | -                | PPG5_TO<br>UT2_1 | MAD18   |
| PPC_PCF<br>GR304<br>(0x00C8) | P3_04 | GPIO_PO<br>DR3:POD<br>04    | SCS11_1 | -       | -       | -       | -                | -                | MAD19   |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |          |         |                   |                   |          |                  |         |
|------------------------------|-------|-----------------------------|----------|---------|-------------------|-------------------|----------|------------------|---------|
|                              |       | POF = 0                     | POF = 1  | POF = 2 | POF = 3           | POF = 4           | POF = 5  | POF = 6          | POF = 7 |
| PPC_PCF<br>GR305<br>(0x00CA) | P3_05 | GPIO_PO<br>DR3:POD<br>05    | SCS12_1  | -       | -                 | -                 | -        | -                | MAD20   |
| PPC_PCF<br>GR306<br>(0x00CC) | P3_06 | GPIO_PO<br>DR3:POD<br>06    | SCS13_1  | MDIO_1  | -                 | -                 | -        | SOT4_1           | MAD21   |
| PPC_PCF<br>GR307<br>(0x00CE) | P3_07 | GPIO_PO<br>DR3:POD<br>07    | -        | -       | -                 | -                 | -        | SCS42_1          | MDQM1   |
| PPC_PCF<br>GR308<br>(0x00D0) | P3_08 | GPIO_PO<br>DR3:POD<br>08    | -        | SGA0_1  | PPG6_TO<br>UT0_1  | OCU0_O<br>TD0_1   | -        | -                | -       |
| PPC_PCF<br>GR309<br>(0x00D2) | P3_09 | GPIO_PO<br>DR3:POD<br>09    | SCK8_1   | SGO0_1  | PPG6_TO<br>UT2_1  | OCU0_O<br>TD1_1   | TOT0_1   | -                | -       |
| PPC_PCF<br>GR310<br>(0x00D4) | P3_10 | GPIO_PO<br>DR3:POD<br>10    | SOT8_1   | SGA1_1  | PPG7_TO<br>UT0_1  | OCU1_O<br>TD0_1   | TRACE0_1 | -                | TX0_1   |
| PPC_PCF<br>GR311<br>(0x00D6) | P3_11 | GPIO_PO<br>DR3:POD<br>11    | SCS80_1  | SGO1_1  | PPG7_TO<br>UT2_1  | OCU1_O<br>TD1_1   | TOT1_1   | TRACE1_1         | -       |
| PPC_PCF<br>GR312<br>(0x00D8) | P3_12 | GPIO_PO<br>DR3:POD<br>12    | -        | SGA2_1  | PPG8_TO<br>UT0_1  | OCU2_O<br>TD0_1   | -        | TRACE2_1         | TX1_1   |
| PPC_PCF<br>GR313<br>(0x00DA) | P3_13 | GPIO_PO<br>DR3:POD<br>13    | SCK10_1  | SGO2_1  | PPG8_TO<br>UT2_1  | OCU2_O<br>TD1_1   | TOT16_1  | TRACE3_1         | -       |
| PPC_PCF<br>GR314<br>(0x00DC) | P3_14 | GPIO_PO<br>DR3:POD<br>14    | SOT10_1  | SGA3_1  | PPG9_TO<br>UT0_1  | OCU8_O<br>TD0_1   | -        | TRACE_1<br>CTL_1 | -       |
| PPC_PCF<br>GR315<br>(0x00DE) | P3_15 | GPIO_PO<br>DR3:POD<br>15    | SCS100_1 | SGO3_1  | PPG9_TO<br>UT2_1  | OCU8_O<br>TD1_1   | TOT17_1  | TRACE_1<br>CLK_1 | TX2_1   |
| PPC_PCF<br>GR316<br>(0x00E0) | P3_16 | GPIO_PO<br>DR3:POD<br>16    | -        | SGA4_1  | PPG10_T<br>OUT0_1 | OCU9_O<br>TD0_1   | -        | -                | -       |
| PPC_PCF<br>GR317<br>(0x00E2) | P3_17 | GPIO_PO<br>DR3:POD<br>17    | -        | SGO4_1  | PPG10_T<br>OUT2_1 | OCU9_O<br>TD1_1   | TOT48_1  | -                | TX3_1   |
| PPC_PCF<br>GR318<br>(0x00E4) | P3_18 | GPIO_PO<br>DR3:POD<br>18    | -        | -       | PPG11_T<br>OUT0_1 | OCU10_1<br>OTD0_1 | -        | -                | -       |
| PPC_PCF<br>GR319<br>(0x00E6) | P3_19 | GPIO_PO<br>DR3:POD<br>19    | SCK9_1   | -       | PPG11_T<br>OUT2_1 | OCU10_1<br>OTD1_1 | -        | -                | -       |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |         |         |         |         |                |                   |         |
|------------------------------|-------|-----------------------------|---------|---------|---------|---------|----------------|-------------------|---------|
|                              |       | POF = 0                     | POF = 1 | POF = 2 | POF = 3 | POF = 4 | POF = 5        | POF = 6           | POF = 7 |
| PPC_PCF<br>GR320<br>(0x00E8) | P3_20 | GPIO_PO<br>DR3:POD<br>20    | SOT9_1  | -       | -       | -       | -              | -                 | TX5_1   |
| PPC_PCF<br>GR321<br>(0x00EA) | P3_21 | GPIO_PO<br>DR3:POD<br>21    | SCS90_1 | -       | -       | -       | TOT49_1        | -                 | -       |
| PPC_PCF<br>GR322<br>(0x00EC) | P3_22 | GPIO_PO<br>DR3:POD<br>22    | SCS91_1 | -       | -       | -       | -              | -                 | -       |
| PPC_PCF<br>GR323<br>(0x00EE) | P3_23 | GPIO_PO<br>DR3:POD<br>23    | -       | -       | -       | -       | SCS120_1       | -                 | TX6_1   |
| PPC_PCF<br>GR324<br>(0x00F0) | P3_24 | GPIO_PO<br>DR3:POD<br>24    | SOT2_1  | -       | -       | -       | -              | PPG12_T<br>OUT0_1 | MDATA8  |
| PPC_PCF<br>GR325<br>(0x00F2) | P3_25 | GPIO_PO<br>DR3:POD<br>25    | SCS20_1 | -       | -       | -       | I2S0_SD_1      | PPG12_T<br>OUT2_1 | MDATA9  |
| PPC_PCF<br>GR326<br>(0x00F4) | P3_26 | GPIO_PO<br>DR3:POD<br>26    | SCS21_1 | -       | -       | -       | I2S0_WS_1      | PPG13_T<br>OUT0_1 | MDATA10 |
| PPC_PCF<br>GR327<br>(0x00F6) | P3_27 | GPIO_PO<br>DR3:POD<br>27    | SCS22_1 | -       | -       | -       | I2S0_SC<br>K_1 | PPG13_T<br>OUT2_1 | MDATA11 |
| PPC_PCF<br>GR328<br>(0x00F8) | P3_28 | GPIO_PO<br>DR3:POD<br>28    | -       | -       | -       | -       | -              | PPG14_T<br>OUT2_1 | MDATA12 |
| PPC_PCF<br>GR329<br>(0x00FA) | P3_29 | GPIO_PO<br>DR3:POD<br>29    | SCK3_1  | -       | -       | -       | -              | PPG15_T<br>OUT0_1 | MDATA13 |
| PPC_PCF<br>GR330<br>(0x00FC) | P3_30 | GPIO_PO<br>DR3:POD<br>30    | SOT3_1  | -       | -       | -       | -              | PPG15_T<br>OUT2_1 | MDATA14 |
| PPC_PCF<br>GR331<br>(0x00FE) | P3_31 | GPIO_PO<br>DR3:POD<br>31    | SCS30_1 | -       | -       | -       | -              | -                 | MDATA15 |
| PPC_PCF<br>GR400<br>(0x0100) | P4_00 | GPIO_PO<br>DR4:POD<br>00    | -       | -       | -       | -       | -              | -                 | -       |
| PPC_PCF<br>GR401<br>(0x0102) | P4_01 | GPIO_PO<br>DR4:POD<br>01    | -       | -       | -       | -       | TX0_2          | -                 | -       |
| PPC_PCF<br>GR402<br>(0x0104) | P4_02 | GPIO_PO<br>DR4:POD<br>02    | -       | -       | -       | -       | -              | -                 | -       |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |         |         |              |         |         |         |         |
|------------------------------|-------|-----------------------------|---------|---------|--------------|---------|---------|---------|---------|
|                              |       | POF = 0                     | POF = 1 | POF = 2 | POF = 3      | POF = 4 | POF = 5 | POF = 6 | POF = 7 |
| PPC_PCF<br>GR403<br>(0x0106) | P4_03 | GPIO_PO<br>DR4:POD<br>03    | -       | -       | SCS170_<br>1 | -       | -       | -       | -       |
| PPC_PCF<br>GR404<br>(0x0108) | P4_04 | GPIO_PO<br>DR4:POD<br>04    | -       | TXEN_1  | SCK17_1      | -       | TX3_2   | -       | -       |
| PPC_PCF<br>GR405<br>(0x010A) | P4_05 | GPIO_PO<br>DR4:POD<br>05    | -       | TXD0_1  | SOT17_1      | -       | -       | -       | -       |
| PPC_PCF<br>GR406<br>(0x010C) | P4_06 | GPIO_PO<br>DR4:POD<br>06    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR407<br>(0x010E) | P4_07 | GPIO_PO<br>DR4:POD<br>07    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR408<br>(0x0110) | P4_08 | GPIO_PO<br>DR4:POD<br>08    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR409<br>(0x0112) | P4_09 | GPIO_PO<br>DR4:POD<br>09    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR410<br>(0x0114) | P4_10 | GPIO_PO<br>DR4:POD<br>10    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR411<br>(0x0116) | P4_11 | GPIO_PO<br>DR4:POD<br>11    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR412<br>(0x0118) | P4_12 | GPIO_PO<br>DR4:POD<br>12    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR413<br>(0x011A) | P4_13 | GPIO_PO<br>DR4:POD<br>13    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR414<br>(0x011C) | P4_14 | GPIO_PO<br>DR4:POD<br>14    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR415<br>(0x011E) | P4_15 | GPIO_PO<br>DR4:POD<br>15    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR416<br>(0x0120) | P4_16 | GPIO_PO<br>DR4:POD<br>16    | -       | -       | -            | -       | -       | -       | -       |
| PPC_PCF<br>GR417<br>(0x0122) | P4_17 | GPIO_PO<br>DR4:POD<br>17    | -       | -       | -            | -       | SOT12_1 | -       | -       |

| Register<br>(Offset)         | Port  | Resource Functional Outputs |         |         |         |         |          |         |         |
|------------------------------|-------|-----------------------------|---------|---------|---------|---------|----------|---------|---------|
|                              |       | POF = 0                     | POF = 1 | POF = 2 | POF = 3 | POF = 4 | POF = 5  | POF = 6 | POF = 7 |
| PPC_PCF<br>GR418<br>(0x0124) | P4_18 | GPIO_PO<br>DR4:POD<br>18    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR419<br>(0x0126) | P4_19 | GPIO_PO<br>DR4:POD<br>19    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR420<br>(0x0128) | P4_20 | GPIO_PO<br>DR4:POD<br>20    | -       | -       | -       | -       | SOT16_1  | -       | -       |
| PPC_PCF<br>GR421<br>(0x012A) | P4_21 | GPIO_PO<br>DR4:POD<br>21    | -       | -       | -       | -       | SCK16_1  | -       | -       |
| PPC_PCF<br>GR422<br>(0x012C) | P4_22 | GPIO_PO<br>DR4:POD<br>22    | -       | -       | -       | -       | SCS161_1 | -       | -       |
| PPC_PCF<br>GR423<br>(0x012E) | P4_23 | GPIO_PO<br>DR4:POD<br>23    | -       | -       | -       | -       | SCS160_1 | -       | -       |
| PPC_PCF<br>GR424<br>(0x0130) | P4_24 | GPIO_PO<br>DR4:POD<br>24    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR425<br>(0x0132) | P4_25 | GPIO_PO<br>DR4:POD<br>25    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR426<br>(0x0134) | P4_26 | GPIO_PO<br>DR4:POD<br>26    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR427<br>(0x0136) | P4_27 | GPIO_PO<br>DR4:POD<br>27    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR428<br>(0x0138) | P4_28 | GPIO_PO<br>DR4:POD<br>28    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR429<br>(0x013A) | P4_29 | GPIO_PO<br>DR4:POD<br>29    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR430<br>(0x013C) | P4_30 | GPIO_PO<br>DR4:POD<br>30    | -       | -       | -       | -       | -        | -       | -       |
| PPC_PCF<br>GR431<br>(0x013E) | P4_31 | GPIO_PO<br>DR4:POD<br>31    | SCK2_1  | -       | -       | -       | -        | -       | -       |

**Notes:**

- The hyphen indicates that setting is prohibited. If setting the port will be operated as input independent on the register value of the GPIO\_DDR.
- The register for P0\_20 for POF exists though the port only supports input not supports output. The configuration of POF = 0 for the port does not affect anything.

## 8. Precautions and Handling Devices

### 8.1 Handling Precautions

Any semiconductor devices have inherently a certain rate of failure. The possibility of failure is greatly affected by the conditions in which they are used (circuit conditions, environmental conditions, etc.). This page describes precautions that must be observed to minimize the chance of failure and to obtain higher reliability from your Cypress semiconductor devices.

#### 8.1.1 Precautions for Product Design

This section describes precautions when designing electronic equipment using semiconductor devices.

#### Absolute Maximum Ratings

Semiconductor devices can be permanently damaged by application of stress (voltage, current, temperature, and so on.) in excess of certain established limits, called absolute maximum ratings. Do not exceed these ratings.

#### Recommended Operating Conditions

Recommended operating conditions are normal operating ranges for the semiconductor device. All the device's electrical characteristics are warranted when operated within these ranges.

Always use semiconductor devices within the recommended operating conditions. Operation outside these ranges may adversely affect reliability and could result in device failure.

No warranty is made with respect to uses, operating conditions, or combinations not represented on the data sheet. Users considering application outside the listed conditions are advised to contact their sales representative beforehand.

#### Processing and Protection of Pins

These precautions must be followed when handling the pins which connect semiconductor devices to power supply and input/output functions.

##### (1) Preventing Over-Voltage and Over-Current Conditions

Exposure to voltage or current levels in excess of maximum ratings at any pin is likely to cause deterioration within the device and in extreme cases leads to permanent damage of the device. Try to prevent such overvoltage or over-current conditions at the design stage.

##### (2) Protection of Output Pins

Shorting of output pins to supply pins or other output pins, or connection to large capacitance can cause large current flows. Such conditions if present for extended periods of time can damage the device.

Therefore, avoid this type of connection.

##### (3) Handling of Unused Input Pins

Unconnected input pins with very high impedance levels can adversely affect stability of operation. Such pins should be connected through an appropriate resistance to a power supply pin or ground pin.

### **8.1.2 Precautions for Package Mounting**

Package mounting may be either lead insertion type or surface mount type. In either case, for heat resistance during soldering, you should only mount under Cypress's recommended conditions. For detailed information about mount conditions, contact your sales representative.

#### **Lead Insertion Type**

Mounting of lead insertion type packages onto printed circuit boards may be done by two methods: direct soldering on the board, or mounting by using a socket.

Direct mounting onto boards normally involves processes for inserting leads into through-holes on the board and using the flow soldering (wave soldering) method of applying liquid solder. In this case, the soldering process usually causes leads to be subjected to thermal stress in excess of the absolute ratings for storage temperature. Mounting processes should conform to Cypress recommended mounting conditions.

If socket mounting is used, differences in surface treatment of the socket contacts and IC lead surfaces can lead to contact deterioration after long periods. For this reason it is recommended that the surface treatment of socket contacts and IC leads be verified before mounting.

#### **Surface Mount Type**

Surface mount packaging has longer and thinner leads than lead-insertion packaging, and therefore leads are more easily deformed or bent. The use of packages with higher pin counts and narrower pin pitch results in increased susceptibility to open connections caused by deformed pins, or shorting due to solder bridges.

You must use appropriate mounting techniques. Cypress recommends the solder reflow method, and has established a ranking of mounting conditions for each product. Users are advised to mount packages in accordance with Cypress ranking of recommended conditions.

#### **Lead-Free Packaging**

**CAUTION:** When ball grid array (BGA) packages with Sn-Ag-Cu balls are mounted using Sn-Pb eutectic soldering, junction strength may be reduced under some conditions of use.

#### **Storage of Semiconductor Devices**

Because plastic chip packages are formed from plastic resins, exposure to natural environmental conditions will cause absorption of moisture. During mounting, the application of heat to a package that has absorbed moisture can cause surfaces to peel, reducing moisture resistance and causing packages to crack. To prevent, do the following:

- (1) Avoid exposure to rapid temperature changes, which cause moisture to condense inside the product. Store products in locations where temperature changes are slight.
- (2) Use dry boxes for product storage. Products should be stored below 70 % relative humidity, and at temperatures between 5 °C and 30 °C. When you open Dry Package that recommends humidity 40 % to 70 % relative humidity.
- (3) When necessary, Cypress packages semiconductor devices in highly moisture-resistant aluminum laminate bags, with a silica gel desiccant. Devices should be sealed in their aluminum laminate bags for storage.
- (4) Avoid storing packages where they are exposed to corrosive gases or high levels of dust.

#### **Baking**

Packages that have absorbed moisture may be de-moisturized by baking (heat drying). Follow the Cypress recommended conditions for baking.

Condition: 125 °C/24 h

#### **Static Electricity**

Because semiconductor devices are particularly susceptible to damage by static electricity, you must take the following precautions:

- (1) Maintain relative humidity in the working environment between 40 % and 70 %.  
Use of an apparatus for ion generation may be needed to remove electricity.
- (2) Electrically ground all conveyors, solder vessels, soldering irons and peripheral equipment.
- (3) Eliminate static body electricity by the use of rings or bracelets connected to ground through high resistance (on the level of 1 MΩ).  
Wearing of conductive clothing and shoes, use of conductive floor mats and other measures to minimize shock loads is recommended.
- (4) Ground all fixtures and instruments, or protect with anti-static measures.

(5) Avoid the use of styrofoam or other highly static-prone materials for storage of completed board assemblies.

### **8.1.3 Precautions for Use Environment**

Reliability of semiconductor devices depends on ambient temperature and other conditions as described above.

For reliable performance, do the following:

#### **(1) Humidity**

Prolonged use in high humidity can lead to leakage in devices as well as printed circuit boards. If high humidity levels are anticipated, consider anti-humidity processing.

#### **(2) Discharge of Static Electricity**

When high-voltage charges exist close to semiconductor devices, discharges can cause abnormal operation. In such cases, use anti-static measures or processing to prevent discharges.

#### **(3) Corrosive Gases, Dust, or Oil**

Exposure to corrosive gases or contact with dust or oil may lead to chemical reactions that will adversely affect the device. If you use devices in such conditions, consider ways to prevent such exposure or to protect the devices.

#### **(4) Radiation, Including Cosmic Radiation**

Most devices are not designed for environments involving exposure to radiation or cosmic radiation. Users should provide shielding as appropriate.

#### **(5) Smoke, Flame**

CAUTION: Plastic molded devices are flammable, and therefore should not be used near combustible substances. If devices begin to smoke or burn, there is danger of the release of toxic gases.

Customers considering the use of Cypress products in other special environmental conditions should consult with sales representatives.



## 8.2 Handling Devices

### For Latch-Up Prevention

The latch-up phenomenon may occur on a CMOS IC in the following cases: the voltage applied to an input or output pin is higher than VCC or lower than VSS; or the voltage applied between a VCC pin and a VSS pin exceeds the rating. A latch-up causes a rapid increase in the power supply current, possibly resulting in thermal damage to an element. When using the device, take sufficient care not to exceed the maximum rating.

Also be careful that analog power supplies (AVCC5,AVRH5) and analog inputs do not exceed the digital power supply (VCC) at the analog system power-on and power-off times.

The power-on sequence is as follows. Simultaneously turn on the digital supply voltage (VCC) and analog supply voltages (AVCC5,AVRH5), or turn on the digital supply voltage (VCC) and then the analog supply voltages (AVCC5,AVRH5).

### About Handling Unused Pins

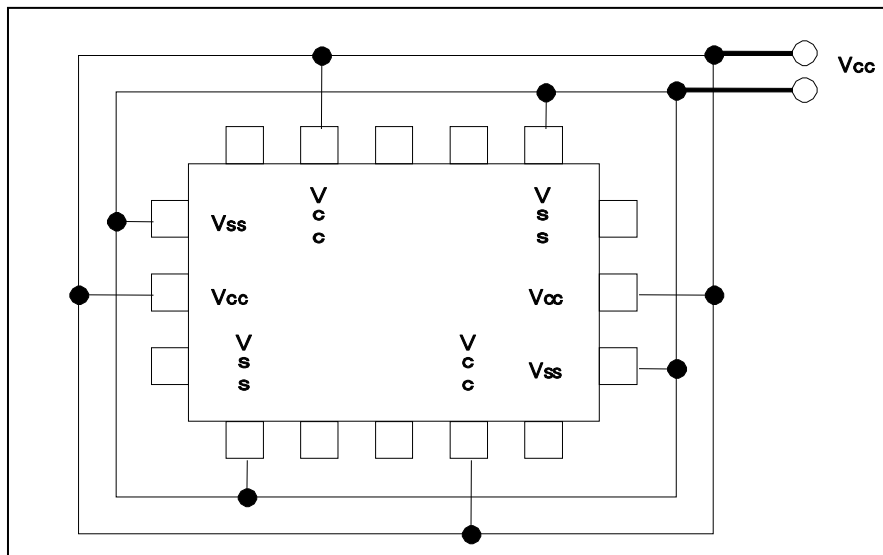
Leaving unused input pins open may cause permanent damage from a malfunction or latch-up. Take measures for unused pins, such as pulling up or pulling down the voltage with resistors of 2 kilo ohms or higher.

If there are any unused input/output pins, set them to the output state and then open them, or set them to the input state and handle them in the same way as input pins.

### About Power Supply Pins

If the device has multiple VCC and VSS pins, the device is designed in such a way that the pins that should be at the same potential are connected to each other inside the device to prevent malfunctions such as latch-up. However, to reduce unwanted emissions, prevent malfunctions of strobe signals caused by an increase of the ground level, and observe standards on total output current, be sure to connect all the VCC and VSS pins to the power source and ground externally. Also handle all the VSS power supply pins in this way as shown in the following diagram. If there are multiple VCC or VSS systems, the device does not operate normally even within the guaranteed operating range.

**Figure 8-1 Pin Assignment**



In addition, consider connecting with low impedance from the power supply source to the VCC and VSS of this device.

We recommend connecting a ceramic capacitor as a bypass capacitor between VCC and VSS, near this device.

### About the Crystal Oscillation Circuit

Noise entering the X0 or X1 pin may cause a malfunction. Design the printed circuit board in such a way that the X0 and X1 pins, the crystal oscillator (or ceramic resonator), and a bypass capacitor to ground are located very close to the device.

We recommend that the printed circuit board artwork have the X0 and X1 pins enclosed by ground.

### About the Mode Pin (MODE)

Use mode pin MODE by directly connecting it to a VCC or VSS pin. To prevent noise from causing the device to accidentally enter test mode, reduce the pattern length between each mode pin and a VCC or VSS pin on the printed circuit board, and connect them with low impedance.

### About the Power-on Time

To prevent the internal built-in voltage step-down circuit from malfunctioning, secure a voltage rising time of 50  $\mu$ s (between 0.2 V and 2.7 V) or longer at the power-on time.

### Point to Note during PLL Clock Operation

While a PLL clock is selected, if the oscillator breaks off or input stops, the PLL clock may continue operating with the free running frequency of the internal self-oscillator circuit. This operation is outside of the guaranteed range.

### Power Supply Pin Processing of an A/D Converter

Even when no A/D converter is used, establish a connection such that  $AVCC5 = AVRH5 = VCC5$  and  $AVSS/AVRL5 = VSS$ .

### Points to Note About Using External Clocks

External clocks are not supported.

External direct clock input cannot be used.

### Power-on Sequence of the Power Supply Analog Inputs of an A/D Converter

Be sure to turn on the digital power supply (VCC) before the application of the power supplies (AVCC, AVRH, and AVRL) and analog inputs (AN0 to AN63) of an A/D converter.

At the power-off time, turn off the power supplies and analog inputs of the A/D converter, and then turn off the digital power supply (VCC). Perform these power-on and power-off operations without AVRH exceeding AVCC. Even when using a pin shared with an analog input as an input port, do not allow the input voltage to exceed AVCC. (Turning on or off the analog supply voltage and digital supply voltage simultaneously is not a problem.)

### Method to Switch Off VCC12 during Power-Off Sequence

During power-off sequence, it is necessary to switch off VCC12 by driving PSC1 pin low by entering PSS mode (power domain 2 off). If VCC12 needs to be switched off by other means, RSTX needs to be asserted before switching off VCC12 to inactivate the operation of VCC12 supplied domain below the operation assurance range.

### About C Pin Processing

This device has a built-in voltage step-down circuit. Be sure to connect a capacitor to the C pin for internal stabilization of the device. For the standard values, see "Recommended operating conditions" in the latest data sheet.

### Precautions on Designing a Mounting Substrate

Measures against heat generation from the package must be taken for the mounting substrate to observe the absolute maximum rating (operating temperature). Design a mounting substrate with 4 or more layers. Connect the back of the package stage and the substrate pad with solder paste. Arrange thermal via holes on the substrate pad.

### Notes on Writing to a Register Containing a Status Flag

In writing to a register containing a status flag (particularly an interrupt request flag, etc.) to control a function, it is important to take care not to accidentally clear the status flag.

Therefore, before the write operation, configure the status bit such that the flag is not cleared, and then set the control bit to the desired value.

Especially for control bits configured as a set of multiple bits, bit instructions cannot be used (bit instructions have only 1-bit access). In such cases, byte, half-word, or word access is used to write to the control bits and a status flag simultaneously. However, at this time, be careful not to accidentally clear bits other than the intended ones (the status flag bit in this case).

Note: Bit instructions take this point into account for registers that support bit-band units, so it does not need to be a concern. You need to take care when using bit instructions for registers that do not support bit-band units.

## 9. Electric Characteristics

### 9.1 Electrical Characteristics

This chapter contains target values and information.

Target values and information are subjects to change without notice.

#### 9.1.1 Absolute Maximum Rating

| Parameter                                      | Symbol                | Rating               |                        | Unit | Remarks                                        |
|------------------------------------------------|-----------------------|----------------------|------------------------|------|------------------------------------------------|
|                                                |                       | Min                  | Max                    |      |                                                |
| Power supply voltage <sup>*1, *2</sup>         | V <sub>CC5</sub>      | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +6.0   | V    |                                                |
|                                                | V <sub>CC53</sub>     | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +6.0   | V    | V <sub>CC53</sub> ≤ V <sub>CC5</sub>           |
|                                                | V <sub>CC3</sub>      | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +4.0   | V    | V <sub>CC3</sub> ≤ V <sub>CC5</sub>            |
|                                                | DV <sub>CC</sub>      | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +6.0   | V    |                                                |
|                                                | V <sub>CC12</sub>     | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +1.8   | V    | V <sub>CC12</sub> ≤ AV <sub>CC5</sub>          |
| Analog supply voltage <sup>*1, *2</sup>        | AV <sub>CC5</sub>     | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +6.0   | V    | AV <sub>CC5</sub> ≤ V <sub>CC5</sub>           |
|                                                | AV <sub>CC3_DAC</sub> | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +4.0   | V    | for DAC                                        |
| Analog reference voltage <sup>*1</sup>         | AVRH                  | V <sub>SS</sub> -0.3 | V <sub>SS</sub> +6.0   | V    | AVRH ≤ AV <sub>CC5</sub>                       |
| Input voltage <sup>*1</sup>                    | V <sub>I1</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC5</sub> +0.3  | V    | 5 V pins not shared SMC                        |
|                                                | V <sub>I2</sub>       | V <sub>SS</sub> -0.3 | DV <sub>CC</sub> +0.3  | V    | 5 V pins shared SMC                            |
|                                                | V <sub>I3</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC3</sub> +0.3  | V    | 3 V pins                                       |
|                                                | V <sub>IE</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC53</sub> +0.3 | V    | 5 V/3 V pins                                   |
| Analog pin input voltage <sup>*1</sup>         | V <sub>IA</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC5</sub> +0.3  | V    |                                                |
| Output voltage <sup>*1</sup>                   | V <sub>O1</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC5</sub> +0.3  | V    | 5 V pins not shared SMC                        |
|                                                | V <sub>O2</sub>       | V <sub>SS</sub> -0.3 | DV <sub>CC</sub> +0.3  | V    | 5 V pins shared SMC                            |
|                                                | V <sub>O3</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC3</sub> +0.3  | V    | 3 V pins                                       |
|                                                | V <sub>O4</sub>       | V <sub>SS</sub> -0.3 | V <sub>CC53</sub> +0.3 | V    | 5 V/3 V pins                                   |
| Maximum clamp current                          | I <sub>CLAMP</sub>    | -                    | 4                      | mA   | <sup>*13, *A</sup>                             |
| Total maximum clamp current                    | Σ I <sub>CLAMP</sub>  | -                    | 20                     | mA   | <sup>*13, *A</sup>                             |
| Total maximum clamp current                    | Σ I <sub>CLAMP</sub>  | -                    | 90                     | mA   | <sup>*B</sup>                                  |
| Total maximum clamp current                    | Σ I <sub>CLAMP</sub>  | -                    | 65                     | mA   | <sup>*C</sup>                                  |
| "L"-level maximum output current <sup>*3</sup> | I <sub>OL1</sub>      | -                    | 3.5                    | mA   | When setting is 1 mA <sup>*6, *7, *8</sup>     |
|                                                | I <sub>OL2</sub>      | -                    | 7                      | mA   | When setting is 2 mA <sup>*6, *7, *8, *9</sup> |
|                                                | I <sub>OL3</sub>      | -                    | 10                     | mA   | When setting is 5 mA <sup>*9</sup>             |
|                                                | I <sub>OL4</sub>      | -                    | 16                     | mA   | When setting is 10 mA <sup>*9</sup>            |
|                                                | I <sub>OL6</sub>      | -                    | 40                     | mA   | When setting is 30 mA <sup>*7</sup>            |
|                                                | I <sub>OL7</sub>      | -                    | 8                      | mA   | When setting is 3 mA <sup>*10</sup>            |
|                                                | I <sub>OL8</sub>      | -                    | 11                     | mA   | When setting is 6 mA <sup>*11</sup>            |
|                                                | I <sub>OL9</sub>      | -                    | 21                     | mA   | When setting is 15 mA <sup>*12</sup>           |
| "L"-level average output current <sup>*4</sup> | I <sub>OLAV1</sub>    | -                    | 1                      | mA   | When setting is 1 mA <sup>*6, *7, *8</sup>     |
|                                                | I <sub>OLAV2</sub>    | -                    | 2                      | mA   | When setting is 2 mA <sup>*6, *7, *8, *9</sup> |
|                                                | I <sub>OLAV3</sub>    | -                    | 5                      | mA   | When setting is 5 mA <sup>*9</sup>             |
|                                                | I <sub>OLAV4</sub>    | -                    | 10                     | mA   | When setting is 10 mA <sup>*9</sup>            |
|                                                | I <sub>OLAV6</sub>    | -                    | 30                     | mA   | When setting is 30 mA <sup>*7</sup>            |
|                                                | I <sub>OLAV7</sub>    | -                    | 3                      | mA   | When setting is 3 mA <sup>*10</sup>            |
|                                                | I <sub>OLAV8</sub>    | -                    | 6                      | mA   | When setting is 6 mA <sup>*11</sup>            |
|                                                | I <sub>OLAV9</sub>    | -                    | 15                     | mA   | When setting is 15 mA <sup>*12</sup>           |
| "L"-level total output current <sup>*5</sup>   | ΣI <sub>OL1</sub>     | -                    | 50                     | mA   | <sup>*6, *10</sup>                             |
|                                                | ΣI <sub>OL2</sub>     | -                    | 250                    | mA   | <sup>*7</sup>                                  |

| Parameter                          | Symbol             | Rating |      | Unit | Remarks                            |                                                                                                                                                                                     |
|------------------------------------|--------------------|--------|------|------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    |                    | Min    | Max  |      |                                    |                                                                                                                                                                                     |
| "L"-level total output current*5   | ΣI <sub>OL3</sub>  | -      | 50   | mA   | *8                                 |                                                                                                                                                                                     |
|                                    | ΣI <sub>OL4</sub>  | -      | 50   | mA   | *9, *11                            |                                                                                                                                                                                     |
| "H"-level maximum output current*3 | I <sub>OH1</sub>   | -      | -3.5 | mA   | When setting is 1 mA*6, *7, *8     |                                                                                                                                                                                     |
|                                    | I <sub>OH2</sub>   | -      | -7   | mA   | When setting is 2 mA*6, *7, *8, *9 |                                                                                                                                                                                     |
|                                    | I <sub>OH3</sub>   | -      | -10  | mA   | When setting is 5 mA*9             |                                                                                                                                                                                     |
|                                    | I <sub>OH4</sub>   | -      | -16  | mA   | When setting is 10 mA*9            |                                                                                                                                                                                     |
|                                    | I <sub>OH6</sub>   | -      | -40  | mA   | When setting is 30 mA*7            |                                                                                                                                                                                     |
|                                    | I <sub>OH8</sub>   | -      | -11  | mA   | When setting is 6 mA*11            |                                                                                                                                                                                     |
|                                    | I <sub>OH9</sub>   | -      | -21  | mA   | When setting is 15 mA*12           |                                                                                                                                                                                     |
| "H"-level average output current*4 | I <sub>OHAV1</sub> | -      | -1   | mA   | When setting is 1 mA*6, *7, *8     |                                                                                                                                                                                     |
|                                    | I <sub>OHAV2</sub> | -      | -2   | mA   | When setting is 2 mA*6, *7, *8, *9 |                                                                                                                                                                                     |
|                                    | I <sub>OHAV3</sub> | -      | -5   | mA   | When setting is 5 mA*9             |                                                                                                                                                                                     |
|                                    | I <sub>OHAV4</sub> | -      | -10  | mA   | When setting is 10 mA*9            |                                                                                                                                                                                     |
|                                    | I <sub>OHAV6</sub> | -      | -30  | mA   | When setting is 30 mA*7            |                                                                                                                                                                                     |
|                                    | I <sub>OHAV8</sub> | -      | -6   | mA   | When setting is 6 mA*11            |                                                                                                                                                                                     |
|                                    | I <sub>OHAV9</sub> | -      | -15  | mA   | When setting is 15 mA*12           |                                                                                                                                                                                     |
| "H"-level total output current*5   | ΣI <sub>OH1</sub>  | -      | -50  | mA   | *6, *10                            |                                                                                                                                                                                     |
|                                    | ΣI <sub>OH2</sub>  | -      | -250 | mA   | *7                                 |                                                                                                                                                                                     |
|                                    | ΣI <sub>OH3</sub>  | -      | -50  | mA   | *8                                 |                                                                                                                                                                                     |
|                                    | ΣI <sub>OH4</sub>  | -      | -50  | mA   | *9 *11                             |                                                                                                                                                                                     |
| Power consumption                  | P <sub>D</sub>     | -      | 2000 | mW   | -40 °C ≤ T <sub>A</sub> ≤ 105 °C   |                                                                                                                                                                                     |
|                                    |                    | -      | 1100 | mW   | -40 °C ≤ T <sub>A</sub> ≤ 125 °C   |                                                                                                                                                                                     |
| Operating temperature              | T <sub>A</sub>     | -40    | +105 | °C   | P <sub>D</sub> ≤ 2000 mW           |                                                                                                                                                                                     |
|                                    |                    | -40    | +125 | °C   | P <sub>D</sub> ≤ 1100 mW           |                                                                                                                                                                                     |
| System Thermal Resistance          | Theta j-a1         | -      | 17   | °C/W | TEQFP 208                          | The minimum value depends on the system specification of heat radiation. The described value is estimated under the condition which is specified at “9.1.2 Recommended Operating ”. |
|                                    | Theta j-a2         | -      | 19   | °C/W | TEQFP 176                          |                                                                                                                                                                                     |
|                                    | Theta j-a3         | -      | 20   | °C/W | TEQFP 144 (0.5 mm Pitch)           |                                                                                                                                                                                     |
|                                    | Theta j-a4         | -      | 22   | °C/W | TEQFP 144 (0.4 mm Pitch)           |                                                                                                                                                                                     |
| Package Thermal Resistance         | Psi j-t1           | -      | 0.6  | °C/W | TEQFP208                           |                                                                                                                                                                                     |
|                                    | Psi j-t2           | -      | 1.0  | °C/W | TEQFP176                           |                                                                                                                                                                                     |
|                                    | Psi j-t3           | -      | 2.0  | °C/W | TEQFP144 (0.5 mm Pitch)            |                                                                                                                                                                                     |
|                                    | Psi j-t4           | -      | 2.0  | °C/W | TEQFP144 (0.4 mm Pitch)            |                                                                                                                                                                                     |
| Storage temperature                | T <sub>stg</sub>   | -55    | +150 | °C   |                                    |                                                                                                                                                                                     |

\*1 These parameters are based on the condition that  $V_{SS} = AV_{SS} = DV_{SS} = 0.0\text{ V}$ .

\*2 Take care that  $DV_{CC}$ ,  $AV_{CC5}$  do not exceed  $V_{CC5}$  at, for example, the power-on time.

\*3 The maximum output current is defined as the value of the peak current flowing through any one of the corresponding pins.

\*4 The average output current is defined as the value of the average current flowing through any one of the corresponding pins for a 10 ms period. The average value is the operation current  $\times$  the operation ratio.

\*5 The total output current is defined as the maximum current value flowing through all of corresponding pins.

\*6 Output of 5 V pins.

\*7 Output of SMC pins.

\*8 Output of 5 V/3 V pins.

\*9 Output of 3 V pins.

\*10 Output of I<sup>2</sup>C.

\*11 Output of Media LB pins

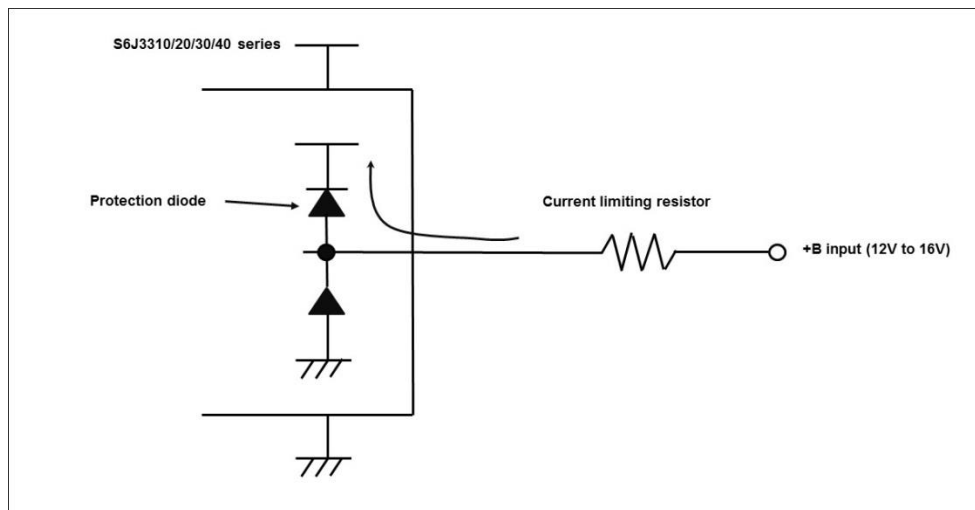
\*12 Output of DSP0\_CLK pins

\*13 VI or VO should never exceed the specified ratings. However, if the maximum current to/from an input is limited by a suitable external resistor, the ICLAMP rating supersedes the VI rating.

\*A Relevant pins: All general-purpose ports and analog input pins

- Corresponding pins: all general-purpose ports
- Use within recommended operating conditions.
- Use at DC voltage (current).
- The +B signal should always be applied by connecting a limiting resistor between the +B signal and the microcontroller.
- The value of the limiting resistor should be set so that the current input to the microcontroller pin does not exceed rated values at any time regardless of instantaneously or constantly when the +B signal is input.
- Note that when the microcontroller drive current is low, such as in the low power consumption modes, the + B input potential can increase the potential at the VCC pin via a protective diode, possibly affecting other devices.
- Note that if the + B signal is input when the microcontroller is off (not fixed at 0 V), since the power is supplied through the pin, the microcontroller may operate incompletely.
- Note that if the +B signal is input at power-on, since the power is supplied through the pin, the power-on reset may not function in the power supply voltage.
- Do not leave + B input pins open.

Example of a recommended circuit



**WARNING:**

- Semiconductor devices may be permanently damaged by application of stress (including, without limitation, voltage, current or temperature) in excess of absolute maximum ratings. Do not exceed any of these ratings.

\*B Relevant pins: All general-purpose ports and analog input pins

- Corresponding pins: all general-purpose ports
- Use within recommended operating conditions.
- Use at DC voltage (current).

MCU is operational, IO is driving LOW level (i.e. NMOS transistor active), there are negative biased pulses (-B signal) applied to active IO according to following specification (must not be exceeded).

Pulse condition specification:

$U_{\text{pulse}} = \text{max } -40 \text{ V}$   
 $T_{\text{pulse}} = \text{max } 1 \text{ ms}$   
 $\#_{\text{pulse}} = \text{max } 5000$

Current and Power Dissipation

$U_{\text{peak}} = -40 \text{ V}$   
 $R_{\text{serial}} = 22 \text{ k}$   
 $\Rightarrow I_{\text{pin}} = 1.8 \text{ mA}$

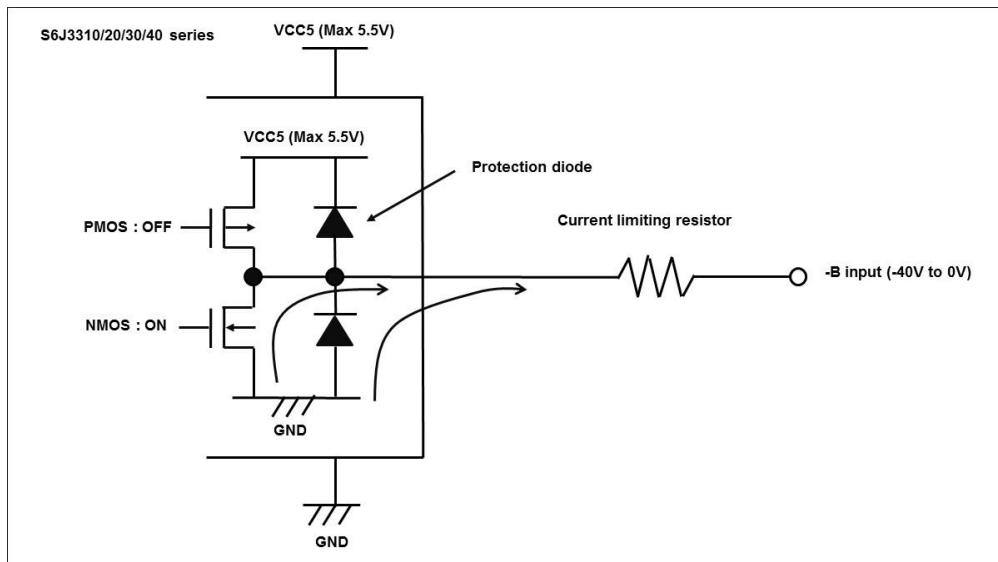
$U_{\text{out}} = -0.1 \text{ V}$  (current drawn mainly over NMOS transistor)

$\Rightarrow I_{\text{total}} = 50 \text{ pins} \times 1.8 \text{ mA} = 90 \text{ mA}$   
 $\Rightarrow P_{\text{total}} = 50 \text{ pins} \times (1.8 \text{ mA} \times 0.1 \text{ V}) = 9 \text{ mW}$

$I_{\text{total}}$  and  $P_{\text{total}}$  are within allowed limits of extended specification.

- The -B signal should always be applied by connecting a limiting resistor between the -B signal and the microcontroller.
- The value of the limiting resistor should be set so that the current input to the microcontroller pin does not exceed rated values at any time regardless of instantaneously or constantly when the -B signal is input.
- Do not leave -B input pins open.

Example of a recommended circuit



**WARNING:**

- Semiconductor devices may be permanently damaged by application of stress (including, without limitation, voltage, current or temperature) in excess of absolute maximum ratings. Do not exceed any of these ratings.

\*C Relevant pins: All general-purpose ports and analog input pins

- Corresponding pins: all general-purpose ports
- Use within non operation conditions. The device is not supplied (VCC5: off, VCC12: off, VCC53: off).
- Use at DC voltage (current).

MCU is non-operational, PCB is in reverse polarity condition (supply of the MCU is off), negative biased voltage level (-B signal) is applied to inactive IO according to following specification (must not be exceeded).

Reverse polarity condition specification:

$$U_{\text{reverse}} = \max -28 \text{ V}$$

$$T_{\text{reverse}} = \max 4 \text{ h}$$

Current and Power Dissipation

$$U_{\text{reverse}} = -28 \text{ V}$$

$$R_{\text{serial}} = 22 \text{ k}$$

$$\Rightarrow I_{\text{pin}} = 1.3 \text{ mA}$$

$$U_{\text{out}} = -0.7 \text{ V (current drawn mainly over clamping diodes)}$$

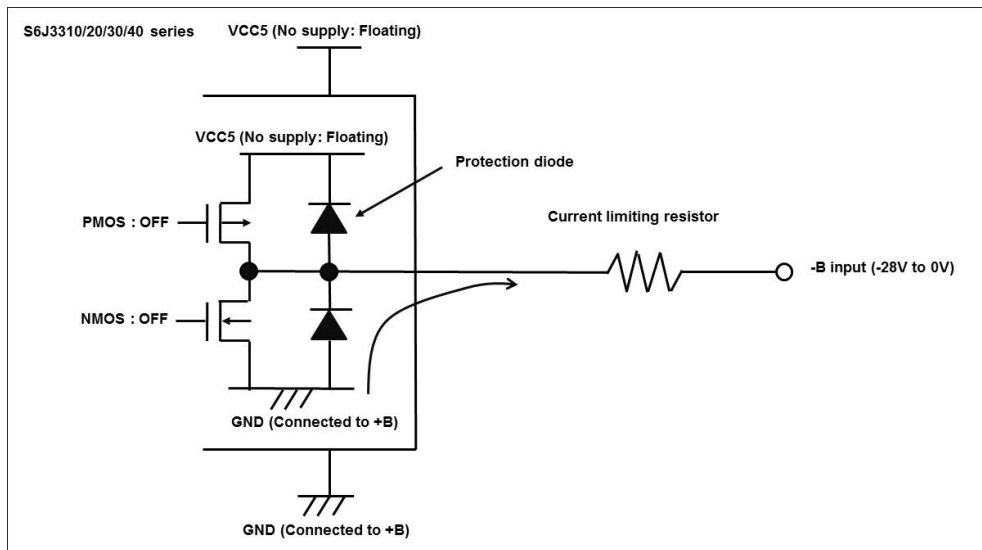
$$\Rightarrow I_{\text{total}} = 50 \text{ pins} \times 1.3 \text{ mA} = 65 \text{ mA}$$

$$\Rightarrow P_{\text{total}} = 50 \text{ pins} \times (1.3 \text{ mA} \times 0.7 \text{ V}) = 46 \text{ mW}$$

$I_{\text{total}}$  and  $P_{\text{total}}$  are within allowed limits of extended specification.

- The - B signal should always be applied by connecting a limiting resistor between the - B signal and the microcontroller.
- The value of the limiting resistor should be set so that the current input to the microcontroller pin does not exceed rated values at any time regardless of instantaneously or constantly when the - B signal is input.
- Do not leave - B input pins open.

Example of a recommended circuit



**WARNING:**

- Semiconductor devices may be permanently damaged by application of stress (including, without limitation, voltage, current or temperature) in excess of absolute maximum ratings. Do not exceed any of these ratings.

### 9.1.2 Recommended Operating Condition

| Parameter                                                                | Symbol            | Pin Name | Rating |     | Unit | Remarks                  |
|--------------------------------------------------------------------------|-------------------|----------|--------|-----|------|--------------------------|
|                                                                          |                   |          | Min    | Max |      |                          |
| Supply voltage<br>Recommended operation<br>assurance range <sup>*4</sup> | V <sub>CC5</sub>  | VCC5     | 4.5    | 5.5 | V    | *1                       |
|                                                                          |                   |          | 3      | 3.6 |      | *2 *3                    |
|                                                                          | V <sub>CC53</sub> | VCC53    | 4.5    | 5.5 | V    | *1                       |
|                                                                          |                   |          | 3      | 3.6 | V    |                          |
|                                                                          | DV <sub>CC</sub>  | DVCC     | 4.5    | 5.5 | V    | *1 *3                    |
|                                                                          |                   |          | 3.0    | 3.6 |      | *2                       |
|                                                                          | AV <sub>CC5</sub> | AVCC5    | 4.5    | 5.5 | V    | *1                       |
|                                                                          |                   |          | 3      | 3.6 |      | *2 *3                    |
| Supply voltage<br>Operation assurance range                              | V <sub>CC5</sub>  | VCC5     | 3.5    | 5.5 | V    | *1                       |
|                                                                          |                   |          | 2.7    | 3.6 |      | *2 *3                    |
|                                                                          | V <sub>CC53</sub> | VCC53    | 2.7    | 5.5 | V    | *1                       |
|                                                                          |                   |          | 2.7    | 3.6 |      |                          |
|                                                                          | DV <sub>CC</sub>  | DVCC     | 3.5    | 5.5 | V    | *1 *3                    |
|                                                                          |                   |          | 2.7    | 3.6 |      | *2                       |
|                                                                          | AV <sub>CC5</sub> | AVCC5    | 3.5    | 5.5 | V    | *1                       |
|                                                                          |                   |          | 2.7    | 3.6 |      | *2 *3                    |
| Smoothing capacitor*                                                     | C <sub>S</sub>    | C        | 4.7    |     | μF   | Tolerance of up to ±40 % |
| Operating temperature                                                    | T <sub>A</sub>    | -        | -40    | 105 | °C   | P <sub>D</sub> ≤ 2000 mW |
|                                                                          | T <sub>A</sub>    | -        | -40    | 125 | °C   | P <sub>D</sub> ≤ 1100 mW |

\*1:For S6J33xxxSx or S6J33xxxUx or S6J33xxxTx or S6J33xxxVx option.

\*2:For S6J33xxxBx or S6J33xxxDx or S6J33xxxFx or S6J33xxxHx option.

\*3:For S6J33xxxAx or S6J33xxxCx or S6J33xxxEx or S6J33xxxGx option.

\*4:Corresponding functions for Low voltage monitoring of supply voltage are described in CHAPTER 13 Low Voltage Detection of *S6J3300 Series Hardware Manual*.

The detection/release threshold values of following LVD channels are potentially below supply range defined in 9.1.2 Recommended operating condition (refer to "9.1.4.11 Low Voltage Detection (External Voltage)" and "9.1.4.12 Low Voltage Detection (Internal Voltage)" for detection/release threshold values for these LVD channels):

LVDL0

LVDL1

LVDL2

LVDH0

LVDH1

LVDH2



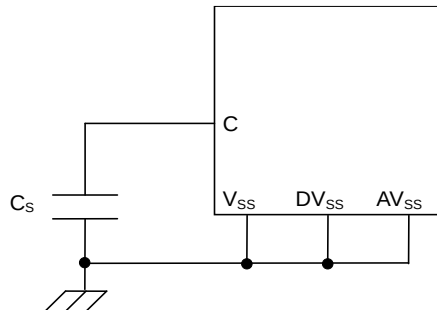
When it is used outside recommended range (this is the range of guaranteed operation), contact your sales representative. The initial detection voltage of the external low voltage detection is  $2.6\text{ V} \pm 3.5\%$ <sup>\*2 \*3</sup> (LVDH1/LVDH2) or  $0.8\text{ V} \pm 3.5\%$  (LVDL2). This LVD setting and internal LVD (LVDL0/LVDL1) cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage.

- Please use these LVD channels with your own risk
- Please monitor the external power supplies on the PCB if needed

\*5: When the voltage of Vcc12 is in the out of range against supply voltage operation assurance, the operation of circuit which Vcc12 used as the power source becomes unstable status. In that case, the value of each registers including RESCAUSEUR Register cannot be guaranteed, so these flags should don't care by software processing

\*: For the connections of smoothing capacitor C<sub>s</sub>, see the following diagram.

**C Pin Connection Diagram**



**Notes:**

- The recommended operating conditions are required in order to ensure the normal operation of the semiconductor device. All of the electrical characteristics of the device are warranted when the device is operated within these ranges. Always use semiconductor devices within their recommended operating condition ranges. Operation outside these ranges may adversely affect reliability and could result in device failure. No warranty is made with respect to uses, operating conditions, or combinations not represented on the data sheet. Users considering application outside the listed conditions are advised to contact sales representatives beforehand.
- Required power supply sequence is the following:  
 {VCC5 -> AVCC5} -> [DVCC or VCC53 or VCC3 or AVCC3\_DAC or VCC12]  
 Note that power supplies inside "[ ]" can be turned on in arbitrary order and "{ }" can be turned on in shown sequence or simultaneously.

**Notes:**

- $T_A$ : Ambient temperature (JEDEC)
- $T_C$ : Case temperature (JEDEC), the maximum measured temperature of package case top.
- Both rating of  $T_A$  and  $T_C$  should simultaneously be satisfied as maximum operation temperature.
- The following condition should be satisfied in order to facilitate heat dissipation.
  1. Four or more layers PCB should be used.
  2. The area of PCB should be 114.3 mm x 76.2 mm or more, and the thickness should be 1.6 mm or more. (JEDEC standard)
  3. One layer of middle layers at least should be used for dedicated layer to radiate heat with residual copper rate 90 % or more. The layer can be used for system ground.
  4. 35 % or more of the die stage area which is exposed at back surface of package should be soldered to a part of 1<sup>st</sup> layer.
  5. The part of 1<sup>st</sup> layer should be connected to the dedicated heat radiation layer with more than 10 thermal via holes.

**Example thermal via holes on PCB**


- The above figure is a schematic diagram showing PCB in section.
- Thermal via holes should closely be placed and aligned with lands.
- It is recommended to connect the land pattern to the VSS-ground level (GND plan of inner layer bellow the MCU) as thermal heat sink.

**9.1.3 DC Characteristics**

(T<sub>A</sub>: Recommended operating conditions, V<sub>cc5</sub>, V<sub>cc53</sub> = 5.0 V ± 10 %, V<sub>cc3</sub> = 3.3 V ± 0.3 V, V<sub>ss</sub> = DV<sub>ss</sub> = AV<sub>ss</sub> = 0.0 V)

| Parameter                     | Symbol            | Pin Name                                                   | Conditions                                 | Value                 |     |                        | Unit | Remarks |
|-------------------------------|-------------------|------------------------------------------------------------|--------------------------------------------|-----------------------|-----|------------------------|------|---------|
|                               |                   |                                                            |                                            | Min                   | Typ | Max                    |      |         |
| "H" level<br>Input<br>voltage | V <sub>IH1</sub>  | P0_00 to<br>P0_20,                                         | CMOS hysteresis<br>input level is selected | 0.7×V <sub>cc53</sub> | -   | V <sub>cc53</sub> +0.3 | V    |         |
|                               | V <sub>IH2</sub>  | P2_09 to<br>P2_19,                                         | Automotive<br>input level is selected      | 0.8×V <sub>cc53</sub> | -   | V <sub>cc53</sub> +0.3 | V    |         |
|                               | V <sub>IH3</sub>  | P3_00 to<br>P3_07,<br>P3_24 to<br>P3_31,<br>P4_00 to P4_07 | TTL<br>input level is selected             | 2.0                   | -   | V <sub>cc53</sub> +0.3 | V    |         |
|                               | V <sub>IH4</sub>  | P1_03 to<br>P1_16, P3_08                                   | CMOS hysteresis<br>input level is selected | 0.7×V <sub>cc5</sub>  | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               | V <sub>IH5</sub>  | to P3_23,<br>P4_08 to P4_23                                | Automotive<br>input level is selected      | 0.8×V <sub>cc5</sub>  | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               | V <sub>IH6</sub>  | P1_09, P1_10,<br>P1_15, P1_16                              | TTL<br>input level is selected             | 2.0                   | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               | V <sub>IH7</sub>  | P1_17 to<br>P1_31, P2_00                                   | CMOS hysteresis<br>input level is selected | 0.7×DV <sub>cc</sub>  | -   | DV <sub>cc</sub> +0.3  | V    |         |
|                               | V <sub>IH8</sub>  | to P2_08,<br>P4_24 to P4_31                                | Automotive<br>input level is selected      | 0.8×DV <sub>cc</sub>  | -   | DV <sub>cc</sub> +0.3  | V    |         |
|                               | V <sub>IH9</sub>  | RSTX                                                       | -                                          | 0.7×V <sub>cc5</sub>  | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               | V <sub>IH10</sub> | NMIX                                                       | -                                          | 0.7×V <sub>cc5</sub>  | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               | V <sub>IH11</sub> | MD                                                         | -                                          | 0.7×V <sub>cc5</sub>  | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               |                   | JTAG_NTRST<br>JTAG_TCK<br>JTAG_TDI<br>JTAG_TMS             | -                                          | 2.7                   | -   | V <sub>cc5</sub> +0.3  | V    |         |
|                               | V <sub>IH12</sub> | P0_21 to<br>P0_31, P1_00<br>to P1_02                       | CMOS hysteresis<br>input level is selected | 0.7×V <sub>cc3</sub>  | -   | V <sub>cc3</sub> +0.3  | V    |         |
|                               | V <sub>IH13</sub> | P0_21 to P0_31                                             | TTL<br>input level is selected             | 2.0                   | -   | V <sub>cc3</sub> +0.3  | V    |         |
|                               | V <sub>IH14</sub> | P1_00 to P1_02                                             | -                                          | 1.7                   | -   | V <sub>cc3</sub> +0.3  | V    | MediaLB |

(TA: Recommended operating conditions,  $V_{CC5}, V_{CC53} = 5.0 \text{ V} \pm 10\%$ ,  $V_{CC3} = 3.3 \text{ V} \pm 0.3 \text{ V}$ ,  $V_{SS} = DV_{SS} = AV_{SS} = 0.0 \text{ V}$ )

| Parameter                     | Symbol     | Pin Name                                                                                         | Conditions                                 | Value        |     |                       | Unit | Remarks |
|-------------------------------|------------|--------------------------------------------------------------------------------------------------|--------------------------------------------|--------------|-----|-----------------------|------|---------|
|                               |            |                                                                                                  |                                            | Min          | Typ | Max                   |      |         |
| "L" level<br>Input<br>voltage | $V_{IL1}$  | P0_00 to<br>P0_20, P2_09<br>to P2_19,<br>P3_00 to<br>P3_07, P3_24<br>to P3_31,<br>P4_00 to P4_07 | CMOS hysteresis<br>input level is selected | $V_{SS}-0.3$ | -   | $0.3 \times V_{CC53}$ | V    |         |
|                               | $V_{IL2}$  |                                                                                                  | Automotive<br>input level is selected      | $V_{SS}-0.3$ | -   | $0.5 \times V_{CC53}$ | V    |         |
|                               | $V_{IL3}$  |                                                                                                  | TTL<br>input level is selected             | $V_{SS}-0.3$ | -   | 0.8                   | V    |         |
|                               | $V_{IL4}$  | P1_03 to<br>P1_16, P3_08<br>to P3_23,<br>P4_08 to P4_23                                          | CMOS hysteresis<br>input level is selected | $V_{SS}-0.3$ | -   | $0.3 \times V_{CC5}$  | V    |         |
|                               | $V_{IL5}$  |                                                                                                  | Automotive<br>input level is selected      | $V_{SS}-0.3$ | -   | $0.5 \times V_{CC5}$  | V    |         |
|                               | $V_{IL6}$  | P1_09, P1_10,<br>P1_15, P1_16                                                                    | TTL<br>input level is selected             | $V_{SS}-0.3$ | -   | 0.8                   | V    |         |
|                               | $V_{IL7}$  | P1_17 to<br>P1_31, P2_00<br>to P2_08,<br>P4_24 to P4_31                                          | CMOS hysteresis<br>input level is selected | $V_{SS}-0.3$ | -   | $0.3 \times DV_{Cc}$  | V    |         |
|                               | $V_{IL8}$  |                                                                                                  | Automotive<br>input level is selected      | $V_{SS}-0.3$ | -   | $0.5 \times DV_{Cc}$  | V    |         |
|                               | $V_{IL9}$  | RSTX<br>NMIX                                                                                     | -                                          | $V_{SS}-0.3$ | -   | $0.3 \times V_{CC5}$  | V    |         |
|                               | $V_{IL10}$ | MD                                                                                               | -                                          | $V_{SS}-0.3$ | -   | $0.3 \times V_{CC5}$  | V    |         |
|                               | $V_{IL11}$ | JTAG_NTRST<br>JTAG_TCK<br>JTAG_TDI<br>JTAG_TMS                                                   | -                                          | $V_{SS}-0.3$ | -   | 0.8                   | V    |         |
|                               | $V_{IL12}$ | P0_21 to<br>P0_31, P1_00<br>to P1_02                                                             | CMOS hysteresis<br>input level is selected | $V_{SS}-0.3$ | -   | $0.3 \times V_{CC3}$  | V    |         |
|                               | $V_{IL13}$ | P0_21 to P0_31                                                                                   | TTL<br>input level is selected             | $V_{SS}-0.3$ | -   | 0.8                   | V    |         |
|                               | $V_{IL14}$ | P1_00 to P1_02                                                                                   | -                                          | $V_{SS}-0.3$ | -   | 0.7                   | V    | MediaLB |

| Parameter          | Symbol             | Pin Name                                                                       | Conditions                              | Value |                                  |     | Unit | Remarks |
|--------------------|--------------------|--------------------------------------------------------------------------------|-----------------------------------------|-------|----------------------------------|-----|------|---------|
|                    |                    |                                                                                |                                         | Min   | Typ                              | Max |      |         |
| Hysteresis voltage | V <sub>HYS1</sub>  | P0_00 to P0_20, P2_09 to P2_19, P3_00 to P3_07, P3_24 to P3_31, P4_00 to P4_07 | CMOS hysteresis input level is selected | -     | 0.05×V <sub>cc53</sub>           | -   | V    |         |
|                    | V <sub>HYS2</sub>  |                                                                                | Automotive input level is selected      | -     | 0.03×V <sub>cc53</sub>           | -   | V    |         |
|                    | V <sub>HYS3</sub>  |                                                                                | TTL input level is selected             | -     | 0.035                            | -   | V    |         |
|                    | V <sub>HYS4</sub>  | P1_03 to P1_16, P3_08 to P3_23, P4_08 to P4_23                                 | CMOS hysteresis input level is selected | -     | 0.05×V <sub>cc5</sub>            | -   | V    |         |
|                    | V <sub>HYS5</sub>  |                                                                                | Automotive input level is selected      | -     | 0.03×V <sub>cc5</sub>            | -   | V    |         |
|                    | V <sub>HYS6</sub>  | P1_09, P1_10, P1_15, P1_16                                                     | TTL input level is selected             | -     | 0.035                            | -   | V    |         |
|                    | V <sub>HYS7</sub>  | P1_17 to P1_31, P2_00 to P2_08, P4_24 to P4_31                                 | CMOS hysteresis input level is selected | -     | 0.05×D <sub>V<sub>CC</sub></sub> | -   | V    |         |
|                    | V <sub>HYS8</sub>  |                                                                                | Automotive input level is selected      | -     | 0.03×D <sub>V<sub>CC</sub></sub> | -   | V    |         |
|                    | V <sub>HYS9</sub>  | RSTX NMIX                                                                      | -                                       | -     | 0.05×V <sub>cc5</sub>            | -   | V    |         |
|                    | V <sub>HYS10</sub> | MD                                                                             | -                                       | -     | 0.05×V <sub>cc5</sub>            | -   | V    |         |
|                    | V <sub>HYS11</sub> | JTAG_NTRST<br>JTAG_TCK<br>JTAG_TDI<br>JTAG_TMS                                 | -                                       | -     | 0.035                            | -   | V    |         |
|                    | V <sub>HYS12</sub> | P0_21 to P0_31, P1_00 to P1_02                                                 | CMOS hysteresis input level is selected | -     | 0.05×V <sub>cc3</sub>            | -   | V    |         |
|                    | V <sub>HYS13</sub> | P0_21 to P0_31                                                                 | TTL input level is selected             | -     | 0.035                            | -   | V    |         |
|                    | V <sub>HYS14</sub> | P1_00 to P1_02                                                                 | -                                       | -     | 0.080                            | -   | V    | MediaLB |

(TA: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                | Symbol            | Pin Name                                                                                                      | Conditions                                             | Value                   |     |                   | Unit | Remarks                           |
|--------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------|-----|-------------------|------|-----------------------------------|
|                          |                   |                                                                                                               |                                                        | Min                     | Typ | Max               |      |                                   |
| "H" level output voltage | V <sub>OH1</sub>  | P0_00 to P0_19,<br>P2_09 to P2_11,<br>P2_13 to P2_19,<br>P3_00 to P3_07,<br>P3_24 to P3_31,<br>P4_00 to P4_07 | V <sub>CC53</sub> = 4.5 V<br>I <sub>OH</sub> = -1.0 mA | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0]=<br>2b00                 |
|                          |                   |                                                                                                               | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -0.5 mA |                         |     |                   |      |                                   |
|                          | V <sub>OH2</sub>  |                                                                                                               | V <sub>CC53</sub> = 4.5 V<br>I <sub>OH</sub> = -2.0 mA | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0]=<br>2b01                 |
|                          |                   |                                                                                                               | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -1.0 mA |                         |     |                   |      |                                   |
|                          | V <sub>OH3</sub>  |                                                                                                               | V <sub>CC53</sub> = 4.5 V<br>I <sub>OH</sub> = -5.0 mA | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0]=<br>2b10                 |
|                          |                   |                                                                                                               | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -2.0 mA |                         |     |                   |      |                                   |
|                          | V <sub>OH4</sub>  | P1_03 to P1_16,<br>P3_08 to P3_23,<br>P4_08 to P4_23                                                          | V <sub>CC5</sub> = 4.5 V<br>I <sub>OH</sub> = -1.0 mA  | V <sub>CC5</sub> - 0.5  | -   | V <sub>CC5</sub>  | V    |                                   |
|                          | V <sub>OH5</sub>  |                                                                                                               | V <sub>CC5</sub> = 4.5 V<br>I <sub>OH</sub> = -2.0 mA  | V <sub>CC5</sub> - 0.5  | -   | V <sub>CC5</sub>  | V    |                                   |
|                          | V <sub>OH6</sub>  |                                                                                                               | V <sub>CC5</sub> = 4.5 V<br>I <sub>OH</sub> = -5.0 mA  | V <sub>CC5</sub> - 0.5  | -   | V <sub>CC5</sub>  | V    |                                   |
|                          | V <sub>OH7</sub>  | PSC_1                                                                                                         | V <sub>CC5</sub> = 4.5 V<br>I <sub>OH</sub> = -2.0 mA  | V <sub>CC5</sub> - 0.5  | -   | V <sub>CC5</sub>  | V    |                                   |
|                          | V <sub>OH8</sub>  | JTAG_TDO                                                                                                      | V <sub>CC5</sub> = 4.5 V<br>I <sub>OH</sub> = -5.0 mA  | V <sub>CC5</sub> - 0.5  | -   | V <sub>CC5</sub>  | V    |                                   |
|                          | V <sub>OH10</sub> | P1_17 to P1_31,<br>P2_00 to P2_08,<br>P4_24 to P4_31                                                          | DV <sub>CC</sub> = 4.5 V<br>I <sub>OH</sub> = -1.0 mA  | DV <sub>CC</sub> - 0.5  | -   | DV <sub>CC</sub>  | V    |                                   |
|                          | V <sub>OH11</sub> |                                                                                                               | DV <sub>CC</sub> = 4.5 V<br>I <sub>OH</sub> = -2.0 mA  | DV <sub>CC</sub> - 0.5  | -   | DV <sub>CC</sub>  | V    |                                   |
|                          | V <sub>OH12</sub> |                                                                                                               | DV <sub>CC</sub> = 4.5 V<br>I <sub>OH</sub> = -5.0 mA  | DV <sub>CC</sub> - 0.5  | -   | DV <sub>CC</sub>  | V    |                                   |
|                          | V <sub>OH13</sub> |                                                                                                               | DV <sub>CC</sub> = 4.5 V<br>I <sub>OH</sub> = -30.0 mA | DV <sub>CC</sub> - 0.5  | -   | DV <sub>CC</sub>  | V    | SMC                               |
|                          | V <sub>OH14</sub> |                                                                                                               | DV <sub>CC</sub> = 4.5 V<br>I <sub>OH</sub> = -40.0 mA | DV <sub>CC</sub> - 0.5  | -   | DV <sub>CC</sub>  | V    | SMC<br>T <sub>j</sub> = -40<br>°C |
|                          | V <sub>OH15</sub> |                                                                                                               | V <sub>CC3</sub> = 3.0 V<br>I <sub>OH</sub> = -2.0 mA  | V <sub>CC3</sub> - 0.5  | -   | V <sub>CC3</sub>  | V    |                                   |
|                          | V <sub>OH16</sub> | P0_21 to P0_31,<br>P1_00 to P1_02                                                                             | V <sub>CC3</sub> = 3.0 V<br>I <sub>OH</sub> = -5.0 mA  | V <sub>CC3</sub> - 0.5  | -   | V <sub>CC3</sub>  | V    |                                   |
|                          | V <sub>OH17</sub> |                                                                                                               | V <sub>CC3</sub> = 3.0 V<br>I <sub>OH</sub> = -6.0 mA  | V <sub>CC3</sub> - 0.5  | -   | V <sub>CC3</sub>  | V    |                                   |
|                          | V <sub>OH18</sub> |                                                                                                               | V <sub>CC3</sub> = 3.0 V<br>I <sub>OH</sub> = -15.0 mA | V <sub>CC3</sub> - 0.5  | -   | V <sub>CC3</sub>  | V    |                                   |

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10%, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                | Symbol            | Pin Name | Conditions                                              | Value                   |     |                   | Unit | Remarks         |
|--------------------------|-------------------|----------|---------------------------------------------------------|-------------------------|-----|-------------------|------|-----------------|
|                          |                   |          |                                                         | Min                     | Typ | Max               |      |                 |
| "H" level output voltage | V <sub>OH19</sub> | P2_12    | V <sub>CC53</sub> = 4.5 V<br>I <sub>OH</sub> = -1.0 mA  | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0] = 2b00 |
|                          | V <sub>OH20</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -0.5 mA  |                         |     |                   |      |                 |
|                          | V <sub>OH21</sub> |          | V <sub>CC53</sub> = 4.5 V<br>I <sub>OH</sub> = -2.0 mA  | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0] = 2b01 |
|                          | V <sub>OH22</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -1.0 mA  |                         |     |                   |      |                 |
|                          | V <sub>OH23</sub> |          | V <sub>CC53</sub> = 4.5 V<br>I <sub>OH</sub> = -5.0 mA  | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0] = 2b10 |
|                          | V <sub>OH24</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -2.0 mA  |                         |     |                   |      |                 |
|                          | V <sub>OH26</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OH</sub> = -15.0 mA | V <sub>CC53</sub> - 0.5 | -   | V <sub>CC53</sub> | V    | ODR[1:0] = 2b11 |

(TA: Recommended operating conditions,  $V_{CC5}, V_{CC53}, DV_{CC} = 5.0 \text{ V} \pm 10 \%$ ,  $V_{CC3} = 3.3 \text{ V} \pm 0.3 \text{ V}$ ,  
 $V_{SS} = DV_{SS} = AV_{SS} = 0.0 \text{ V}$ )

| Parameter                | Symbol     | Pin Name                                                                                                      | Conditions                                              | Value |     |      | Unit | Remarks                        |
|--------------------------|------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-------|-----|------|------|--------------------------------|
|                          |            |                                                                                                               |                                                         | Min   | Typ | Max  |      |                                |
| "L" level output voltage | $V_{OL1}$  | P0_00 to P0_19,<br>P2_09 to P2_11,<br>P2_13 to P2_19,<br>P3_00 to P3_07,<br>P3_24 to P3_31,<br>P4_00 to P4_07 | $V_{CC53} = 4.5 \text{ V}$<br>$I_{OL} = 1.0 \text{ mA}$ | 0     | -   | 0.4  | V    | ODR[1:0] = 2b00                |
|                          |            |                                                                                                               | $V_{CC53} = 3.0 \text{ V}$<br>$I_{OL} = 0.5 \text{ mA}$ |       |     |      |      |                                |
|                          | $V_{OL2}$  |                                                                                                               | $V_{CC53} = 4.5 \text{ V}$<br>$I_{OL} = 2.0 \text{ mA}$ | 0     | -   | 0.4  | V    | ODR[1:0] = 2b01                |
|                          |            |                                                                                                               | $V_{CC53} = 3.0 \text{ V}$<br>$I_{OL} = 1.0 \text{ mA}$ |       |     |      |      |                                |
|                          | $V_{OL3}$  |                                                                                                               | $V_{CC53} = 4.5 \text{ V}$<br>$I_{OL} = 5.0 \text{ mA}$ | 0     | -   | 0.4  | V    | ODR[1:0] = 2b10                |
|                          |            |                                                                                                               | $V_{CC53} = 3.0 \text{ V}$<br>$I_{OL} = 2.0 \text{ mA}$ |       |     |      |      |                                |
|                          | $V_{OL4}$  | P1_03 to P1_16,<br>P3_08 to P3_23,<br>P4_08 to P4_23                                                          | $V_{CC5} = 4.5 \text{ V}$<br>$I_{OL} = 1.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL5}$  |                                                                                                               | $V_{CC5} = 4.5 \text{ V}$<br>$I_{OL} = 2.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL6}$  |                                                                                                               | $V_{CC5} = 4.5 \text{ V}$<br>$I_{OL} = 5.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL7}$  | PSC_1                                                                                                         | $V_{CC5} = 4.5 \text{ V}$<br>$I_{OL} = 2.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL8}$  | JTAG_TDO                                                                                                      | $V_{CC5} = 4.5 \text{ V}$<br>$I_{OL} = 5.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL9}$  | P1_09, P1_10,<br>P1_15, P1_16                                                                                 | $V_{CC5} = 4.5 \text{ V}$<br>$I_{OL} = 3.0 \text{ mA}$  | 0     | -   | 0.4  | V    | I <sup>2</sup> C               |
|                          | $V_{OL10}$ | P1_17 to P1_31,<br>P2_00 to P2_08,<br>P4_24 to P4_31                                                          | $DV_{CC} = 4.5 \text{ V}$<br>$I_{OL} = 1.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL11}$ |                                                                                                               | $DV_{CC} = 4.5 \text{ V}$<br>$I_{OL} = 2.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL12}$ |                                                                                                               | $DV_{CC} = 4.5 \text{ V}$<br>$I_{OL} = 5.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL13}$ |                                                                                                               | $DV_{CC} = 4.5 \text{ V}$<br>$I_{OL} = 30.0 \text{ mA}$ | 0     | -   | 0.55 | V    | SMC                            |
|                          | $V_{OL14}$ |                                                                                                               | $DV_{CC} = 4.5 \text{ V}$<br>$I_{OL} = 40.0 \text{ mA}$ | 0     | -   | 0.55 | V    | SMC<br>T <sub>j</sub> = -40 °C |
|                          | $V_{OL15}$ |                                                                                                               | $V_{CC3} = 3.0 \text{ V}$<br>$I_{OL} = 2.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL16}$ | P0_21 to P0_31,<br>P1_00 to P1_02                                                                             | $V_{CC3} = 3.0 \text{ V}$<br>$I_{OL} = 5.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL17}$ |                                                                                                               | $V_{CC3} = 3.0 \text{ V}$<br>$I_{OL} = 6.0 \text{ mA}$  | 0     | -   | 0.4  | V    |                                |
|                          | $V_{OL18}$ |                                                                                                               | $V_{CC3} = 3.0 \text{ V}$<br>$I_{OL} = 15.0 \text{ mA}$ | 0     | -   | 0.4  | V    |                                |



(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                | Symbol            | Pin Name | Conditions                                             | Value |     |     | Unit | Remarks         |
|--------------------------|-------------------|----------|--------------------------------------------------------|-------|-----|-----|------|-----------------|
|                          |                   |          |                                                        | Min   | Typ | Max |      |                 |
| "L" level output voltage | V <sub>OL19</sub> | P2_12    | V <sub>CC53</sub> = 4.5 V<br>I <sub>OL</sub> = 1.0 mA  | 0     | -   | 0.4 | V    | ODR[1:0] = 2b00 |
|                          | V <sub>OL20</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OL</sub> = 0.5 mA  |       |     |     |      |                 |
|                          | V <sub>OL21</sub> |          | V <sub>CC53</sub> = 4.5 V<br>I <sub>OL</sub> = 2.0 mA  | 0     | -   | 0.4 | V    | ODR[1:0] = 2b01 |
|                          | V <sub>OL22</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OL</sub> = 1.0 mA  |       |     |     |      |                 |
|                          | V <sub>OL23</sub> |          | V <sub>CC53</sub> = 4.5 V<br>I <sub>OL</sub> = 5.0 mA  | 0     | -   | 0.4 | V    | ODR[1:0] = 2b10 |
|                          | V <sub>OL24</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OL</sub> = 2.0 mA  |       |     |     |      |                 |
|                          | V <sub>OL26</sub> |          | V <sub>CC53</sub> = 3.0 V<br>I <sub>OL</sub> = 15.0 mA | 0     | -   | 0.4 | V    | ODR[1:0] = 2b11 |

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter             | Symbol             | Pin Name                                                                       | Conditions                                                                                                                               | Value |     |     | Unit | Remarks                  |
|-----------------------|--------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|-------|-----|-----|------|--------------------------|
|                       |                    |                                                                                |                                                                                                                                          | Min   | Typ | Max |      |                          |
| Input leakage current | I <sub>IL</sub>    | P0_00 to P0_20, P1_03 to P1_31, P2_00 to P2_19, P3_00 to P3_31, P4_00 to P4_31 | V <sub>CC5</sub> = V <sub>CC53</sub> = DV <sub>CC</sub> = AV <sub>CC</sub> = 5.5 V<br>V <sub>SS</sub> < V <sub>I</sub> < V <sub>CC</sub> | -5    | -   | +5  | μA   | 5 V pins<br>5 V/3 V pins |
|                       |                    | P0_21 to P0_31, P1_00 to P1_02                                                 | V <sub>CC3</sub> = 3.6 V<br>V <sub>SS</sub> < V <sub>I</sub> < V <sub>CC3</sub>                                                          | -10   | -   | +10 | μA   | 3 V pins                 |
| Pull-up resistor      | R <sub>UP1</sub>   | RSTX, NMIX                                                                     | -                                                                                                                                        | 25    | 50  | 100 | kΩ   |                          |
|                       | R <sub>UP2</sub>   | P0_00 to P0_20, P1_03 to P1_31, P2_00 to P2_19, P3_00 to P3_31, P4_00 to P4_31 | Pull-up resistor selected                                                                                                                | 25    | 50  | 100 | kΩ   | 5 V pins<br>5 V/3 V pins |
|                       | R <sub>UP3</sub>   | P0_21 to P0_31, P1_00 to P1_02                                                 | Pull-up resistor selected                                                                                                                | 17    | 50  | 66  | kΩ   | 3 V pins                 |
|                       | R <sub>UP4</sub>   | JTAG_TDI, JTAG_TMS, JTAG_TCK                                                   | -                                                                                                                                        | 25    | 50  | 100 | kΩ   |                          |
| Pull-down resistor    | R <sub>down1</sub> | P0_00 to P0_20, P1_03 to P1_31, P2_00 to P2_19, P3_00 to P3_31, P4_00 to P4_31 | Pull-down resistor selected                                                                                                              | 25    | 50  | 100 | kΩ   | 5 V pins<br>5 V/3 V pins |
|                       | R <sub>down2</sub> | P0_21 to P0_31, P1_00 to P1_02                                                 | Pull-down resistor selected                                                                                                              | 17    | 50  | 66  | kΩ   | 3 V pins                 |
|                       | R <sub>down3</sub> | JTAG_NTRST                                                                     | -                                                                                                                                        | 25    | 50  | 100 | kΩ   |                          |
| Input capacitance     | C <sub>IN1</sub>   | P0_00 to P0_31, P1_00 to P1_16, P2_09 to P2_19, P3_00 to P3_31, P4_00 to P4_23 | -                                                                                                                                        | -     | 5   | 15  | pF   |                          |
|                       | C <sub>IN2</sub>   | P1_17 to P1_31, P2_00 to P2_08, P4_24 to P4_31                                 | -                                                                                                                                        | -     | 15  | 45  | pF   | When using SMC           |

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V,  
 V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter            | Symbol             | Pin Name         | Conditions        | Value |     |     | Unit | Remarks                                                                                                 |
|----------------------|--------------------|------------------|-------------------|-------|-----|-----|------|---------------------------------------------------------------------------------------------------------|
|                      |                    |                  |                   | Min   | Typ | Max |      |                                                                                                         |
| Power supply current | I <sub>CC12</sub>  | VCC12            | Normal operation  | -     | 315 | 775 | mA   | T <sub>A</sub> = -40 ~ 105 °C<br>CPU:240MHz, HPM:120 MHz<br>(CPU:200 MHz, HPM:200 MHz)<br>GDC: 200 MHz  |
|                      |                    |                  |                   | -     | -   | 395 | mA   | Example use case *1<br>T <sub>A</sub> = -40 ~ 105 °C<br>CPU:60 MHz, HPM:60 MHz<br>GDC: 60 MHz           |
|                      |                    |                  | Flash write/erase | -     | 320 | 780 | mA   | T <sub>A</sub> = -40 ~ 105 °C<br>CPU:240 MHz, HPM:120 MHz<br>(CPU:200 MHz, HPM:200 MHz)<br>GDC: 200 MHz |
|                      | I <sub>CCH12</sub> | Timer/ Stop Mode | -                 | -     | 420 | mA  |      |                                                                                                         |
|                      | I <sub>CC5</sub>   | VCC5             | Normal operation  | -     | 25  | 45  | mA   |                                                                                                         |
|                      |                    |                  | Flash write/erase | -     | -   | 60  | mA   |                                                                                                         |

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter            | Symbol            | Pin Name | Conditions | Value |     |     | Unit | Remarks                                                                                          |
|----------------------|-------------------|----------|------------|-------|-----|-----|------|--------------------------------------------------------------------------------------------------|
|                      |                   |          |            | Min   | Typ | Max |      |                                                                                                  |
| Power supply current | I <sub>CCT5</sub> | VCC5     | Timer mode | -     | 370 | 810 | μA   | T <sub>A</sub> = 25 °C. 4 MHz crystal for main oscillator<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON    |
|                      |                   |          |            | -     | 360 | 780 | μA   | T <sub>A</sub> = 25 °C. 4 MHz crystal for main oscillator.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON |
|                      |                   |          |            | -     | 350 | 750 | μA   | T <sub>A</sub> = 25 °C. 4 MHz crystal for main oscillator.<br>PD1 = ON                           |
|                      |                   |          |            | -     | 450 | 890 | μA   | T <sub>A</sub> = 25 °C. 8 MHz crystal for main oscillator<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON    |
|                      |                   |          |            | -     | 440 | 860 | μA   | T <sub>A</sub> = 25 °C. 8 MHz crystal for main oscillator.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON |
|                      |                   |          |            | -     | 430 | 830 | μA   | T <sub>A</sub> = 25 °C. 8 MHz crystal for main oscillator.<br>PD1 = ON                           |
|                      |                   |          |            | -     | 110 | 430 | μA   | T <sub>A</sub> = 25 °C. 32 kHz crystal for sub oscillator<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON    |
|                      |                   |          |            | -     | 100 | 400 | μA   | T <sub>A</sub> = 25 °C. 32 kHz crystal for sub oscillator.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON |
|                      |                   |          |            | -     | 90  | 370 | μA   | T <sub>A</sub> = 25 °C. 32 kHz crystal for sub oscillator.<br>PD1 = ON                           |
|                      | I <sub>CCH5</sub> | VCC5     | Stop mode  | -     | 100 | 400 | μA   | T <sub>A</sub> = 25 °C.<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON                                      |
|                      |                   |          |            | -     | 90  | 370 | μA   | T <sub>A</sub> = 25 °C.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON                                    |
|                      |                   |          |            | -     | 80  | 340 | μA   | T <sub>A</sub> = 25 °C.<br>PD1 = ON                                                              |

\*1: Example use case at following condition

CPU:60MHz, HPM:60MHz, GDC: 60MHz

Peripherals:

- DMAC active (WorkFlash => SystemRAM)
- All timers active
- 6 SMCs, 1 CAN, 2LIN, 1SPI, PWMs, ADCs

Display controller:

- 2 (= all) layers active (60 MHz, noise RGBA, 32 bpp, 2048 x 5 pixels)
- Any other resources inactive
- IOs no toggle

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter              | Symbol            | Pin Name | Conditions | Value |     |     | Unit | Remarks                                                                                          |
|------------------------|-------------------|----------|------------|-------|-----|-----|------|--------------------------------------------------------------------------------------------------|
|                        |                   |          |            | Min   | Typ | Max |      |                                                                                                  |
| Power supply current * | I <sub>CCT5</sub> | VCC5     | Timer mode | -     | 345 | 630 | μA   | T <sub>A</sub> = 25 °C. 4 MHz crystal for main oscillator<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON    |
|                        |                   |          |            | -     | 340 | 625 | μA   | T <sub>A</sub> = 25 °C. 4 MHz crystal for main oscillator.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON |
|                        |                   |          |            | -     | 335 | 620 | μA   | T <sub>A</sub> = 25 °C. 4 MHz crystal for main oscillator.<br>PD1 = ON                           |
|                        |                   |          |            | -     | 420 | 705 | μA   | T <sub>A</sub> = 25 °C. 8 MHz crystal for main oscillator<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON    |
|                        |                   |          |            | -     | 415 | 700 | μA   | T <sub>A</sub> = 25 °C. 8 MHz crystal for main oscillator.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON |
|                        |                   |          |            | -     | 410 | 695 | μA   | T <sub>A</sub> = 25 °C. 8 MHz crystal for main oscillator.<br>PD1 = ON                           |
|                        |                   |          |            | -     | 80  | 135 | μA   | T <sub>A</sub> = 25 °C. 32 kHz crystal for sub oscillator<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON    |
|                        |                   |          |            | -     | 75  | 130 | μA   | T <sub>A</sub> = 25 °C. 32 kHz crystal for sub oscillator.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON |
|                        |                   |          |            | -     | 70  | 125 | μA   | T <sub>A</sub> = 25 °C. 32 kHz crystal for sub oscillator.<br>PD1 = ON                           |
|                        | I <sub>CCH5</sub> | VCC5     | Stop mode  | -     | 75  | 130 | μA   | T <sub>A</sub> = 25 °C.<br>PD1 = ON, PD4_0 = ON, PD4_1 = ON                                      |
|                        |                   |          |            | -     | 70  | 125 | μA   | T <sub>A</sub> = 25 °C.<br>PD1 = ON, PD4_0 = ON or PD4_1 = ON                                    |
|                        |                   |          |            | -     | 65  | 120 | μA   | T <sub>A</sub> = 25 °C.<br>PD1 = ON                                                              |

\* Electric Characteristics for S6J33xxxE.

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                                                    | Symbol                  | Pin Name                                                     | Conditions                                                                                       | Value |      |      | Unit | Remarks |
|--------------------------------------------------------------|-------------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-------|------|------|------|---------|
|                                                              |                         |                                                              |                                                                                                  | Min   | Typ  | Max  |      |         |
| High current output drive capacity Phase-to-phase deviation1 | Delta-V <sub>OH13</sub> | PWM1Pn, PWM1Mn, PWM2Pn, PWM2Mn (n = 0 to 5)                  | DV <sub>CC</sub> = 4.5 V<br>I <sub>OH</sub> = -30.0 mA<br>Maximum deviation of V <sub>OH13</sub> | -     | -    | 90   | mV   | *       |
| High current output drive capacity Phase-to-phase deviation2 | Delta-V <sub>OL13</sub> |                                                              | DV <sub>CC</sub> = 4.5 V<br>I <sub>OL</sub> = 30.0 mA<br>Maximum deviation of V <sub>OL13</sub>  | -     | -    | 90   | mV   | *       |
| LCD divider resistor                                         | R <sub>LCD</sub>        | V0 to V1,<br>V1 to V2,<br>V2 to V3                           | -                                                                                                | 6.25  | 12.5 | 25   | kΩ   |         |
| COM0 to COM3 output impedance                                | R <sub>VCOM</sub>       | COMm<br>(m = 0 to 3)                                         | -                                                                                                | -     | -    | 4.5  | kΩ   |         |
| SEG00 to SEG31 output impedance                              | R <sub>VSEG</sub>       | SEGN<br>(n = 00 to 31)                                       | -                                                                                                | -     | -    | 17   | kΩ   |         |
| LCDC leak current                                            | I <sub>LCDC</sub>       | V0 to V3,<br>COMm<br>(m = 0 to 3),<br>SEGN<br>(n = 00 to 31) | T <sub>A</sub> = 25 °C                                                                           | -0.5  | -    | +0.5 | μA   |         |

\*: If PWM1P0/PWM1M0/PWM2P0/PWM2M0 of ch.0 is turned on simultaneously, the maximum deviation of V<sub>OH13</sub> / V<sub>OL13</sub> for each pin is defined. Same for other channels.

### 9.1.4 AC Characteristics

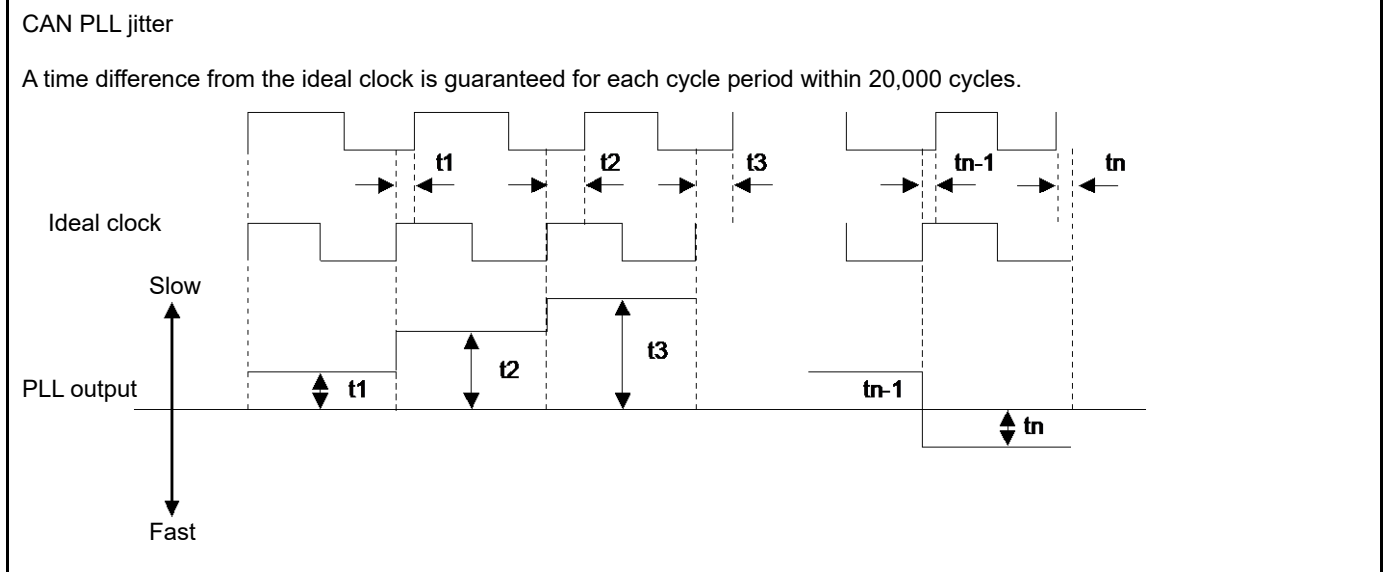
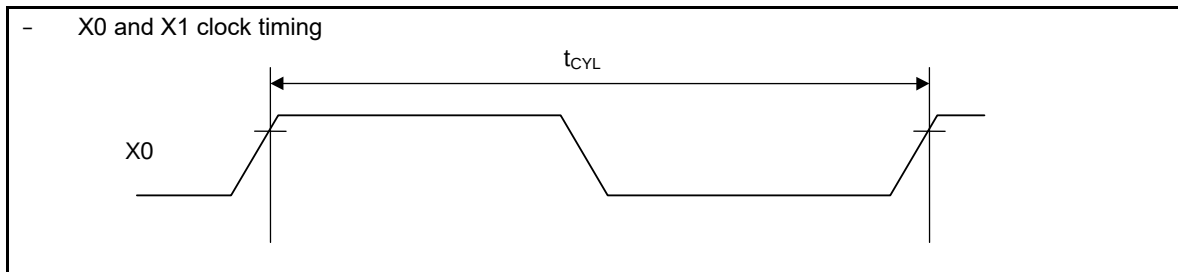
#### 9.1.4.1 Source Clock Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ±10 %, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                              | Symbol           | Pin Name | Conditions | Value |      |       | Unit | Remarks     |
|----------------------------------------|------------------|----------|------------|-------|------|-------|------|-------------|
|                                        |                  |          |            | Min   | Typ  | Max   |      |             |
| Source oscillation clock frequency     | F <sub>C</sub>   | X0, X1   | -          | 3.6   | -    | 16.0  | MHz  |             |
| Source oscillation clock cycle time    | t <sub>CYL</sub> | X0, X1   | -          | 62.5  | -    | 277.8 | ns   |             |
| CAN PLL jitter (when locked)           | t <sub>PJ</sub>  | -        | -          | -10   | -    | 10    | ns   |             |
| Internal Slow CR oscillation frequency | F <sub>CRS</sub> | -        | -          | 50    | 100  | 150   | kHz  |             |
| Internal Fast CR oscillation frequency | F <sub>CRF</sub> | -        | -          | 2.40  | 4.00 | 5.61- | MHz  | Before trim |
|                                        |                  |          |            | 3.20  | 4.00 | 4.81  | MHz  | After trim  |

#### Notes:

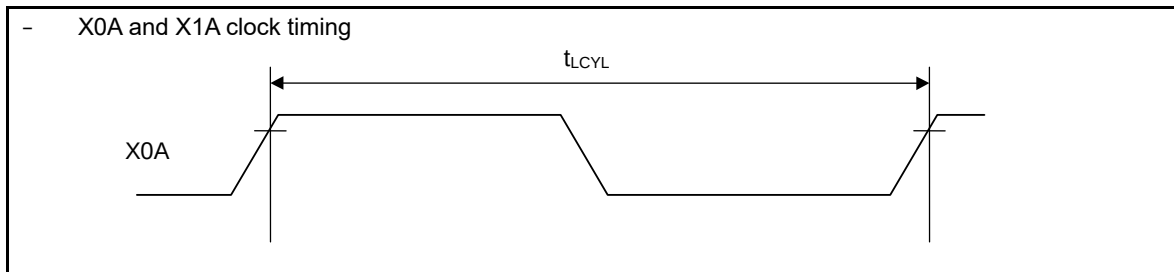
- The maximum/minimum values have been standardized with the main clock and PLL clock in use.
- Jitter of source oscillator must be smaller than 300 ppm.
- Enough evaluation and adjustment are recommended using oscillator on your system board.



#### 9.1.4.2 Sub Clock Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ±10 %, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                           | Symbol            | Pin Name | Conditions | Value |        |     | Unit | Remarks |
|-------------------------------------|-------------------|----------|------------|-------|--------|-----|------|---------|
|                                     |                   |          |            | Min   | Typ    | Max |      |         |
| Source oscillation clock frequency  | F <sub>CL</sub>   | X0A, X1A | -          | -     | 32.768 | -   | kHz  |         |
| Source oscillation clock cycle time | t <sub>LCYL</sub> | X0A, X1A | -          | -     | 30.52  | -   | μs   |         |





### 9.1.4.3 Internal Clock Timing (S6J3310)

- This chapter shows the TARGET characteristics for internal clock timing at the current stage.
- In the column symbol, same clock names as described in CHAPTER 5: CLOCK SYSTEM of *Traveo™ Platform Hardware Manual* are used.
- Corresponding functions for these clocks are described in CHAPTER 5: CLOCK CONFIGURATION of *S6J3300 Series Hardware Manual*.

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ±10 %, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = 0.0 V)

| Parameter                | Symbol                   | Value  |        |        | Unit | Remarks               |
|--------------------------|--------------------------|--------|--------|--------|------|-----------------------|
|                          |                          | Max *1 | Max *2 | Max *3 |      |                       |
| Internal clock frequency | F <sub>SSCG0</sub>       | 480    | 400    | 360    | MHz  | SSCG0 output clock *4 |
|                          | F <sub>SSCG1</sub>       | 400    | 400    | 400    | MHz  | SSCG1 output clock *4 |
|                          | F <sub>SSCG2</sub>       | 320    | 320    | 320    | MHz  | SSCG2 output clock *4 |
|                          | F <sub>SSCG3</sub>       | 400    | 400    | 400    | MHz  | SSCG3 output clock *4 |
|                          | F <sub>PLL0</sub>        | 480    | 400    | 360    | MHz  | PLL0 output clock *4  |
|                          | F <sub>PLL1</sub>        | 400    | 400    | 400    | MHz  | PLL1 output clock *4  |
|                          | F <sub>PLL2</sub>        | 400    | 400    | 400    | MHz  | PLL2 output clock *4  |
|                          | F <sub>PLL3</sub>        | 480    | 480    | 480    | MHz  | PLL3 output clock *4  |
|                          | F <sub>CLK_CPU0</sub>    | 240    | 200    | 180    | MHz  |                       |
|                          | F <sub>CLK_SHE</sub>     | 240    | 200    | 180    | MHz  |                       |
|                          | F <sub>CLK_FCLK</sub>    | 80     | 66.7   | 90     | MHz  |                       |
|                          | F <sub>CLK_ATB</sub>     | 120    | 100    | 90     | MHz  |                       |
|                          | F <sub>CLK_DBG</sub>     | 120    | 100    | 90     | MHz  |                       |
|                          | F <sub>CLK_HPM</sub>     | 120    | 200    | 180    | MHz  |                       |
|                          | F <sub>CLK_HPM2</sub>    | 60     | 100    | 90     | MHz  |                       |
|                          | F <sub>CLK_DMA</sub>     | 120    | 200    | 180    | MHz  |                       |
|                          | F <sub>CLK_MEMC</sub>    | 120    | 200    | 180    | MHz  |                       |
|                          | F <sub>CLK_EXTBUS</sub>  | 40     | 40     | 30     | MHz  |                       |
|                          | F <sub>CLK_SYSC1</sub>   | 40     | 40     | 60     | MHz  |                       |
|                          | F <sub>CLK_HAPP0A0</sub> | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_HAPP0A1</sub> | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_HAPP1B0</sub> | 80     | 50     | 60     | MHz  |                       |
|                          | F <sub>CLK_HAPP1B1</sub> | 40     | 50     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_LLPBM</sub>   | 240    | 200    | 180    | MHz  |                       |
|                          | F <sub>CLK_LLPBM2</sub>  | 120    | 100    | 90     | MHz  |                       |
|                          | F <sub>CLK_LCP</sub>     | 80     | 50     | 60     | MHz  |                       |
|                          | F <sub>CLK_LCP0</sub>    | 40     | 40     | 30     | MHz  |                       |
|                          | F <sub>CLK_LCP0A</sub>   | 80     | 66.7   | 60     | MHz  |                       |
|                          | F <sub>CLK_LCP1</sub>    | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_LCP1A</sub>   | 80     | 66.7   | 60     | MHz  |                       |
|                          | F <sub>CLK_LAPP0</sub>   | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_LAPP0A</sub>  | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_LAPP1</sub>   | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_LAPP1A</sub>  | 40     | 40     | 30     | MHz  | Unused                |
|                          | F <sub>CLK_TRC</sub>     | 100    | 100    | 100    | MHz  |                       |
|                          | F <sub>CLK_CD1</sub>     | 200    | 200    | 200    | MHz  |                       |
|                          | F <sub>CLK_CD1A0</sub>   | 100    | 100    | 100    | MHz  | Unused                |
|                          | F <sub>CLK_CD1A1</sub>   | 100    | 100    | 100    | MHz  | Unused                |
|                          | F <sub>CLK_CD1B0</sub>   | 100    | 100    | 100    | MHz  | Unused                |
|                          | F <sub>CLK_CD1B1</sub>   | 100    | 100    | 100    | MHz  | Unused                |
|                          | F <sub>CLK_CD2</sub>     | 200    | 200    | 200    | MHz  | Unused                |
|                          | F <sub>CLK_CD2A0</sub>   | 200    | 200    | 200    | MHz  |                       |
|                          | F <sub>CLK_CD2A1</sub>   | 200    | 200    | 200    | MHz  | Unused                |
|                          | F <sub>CLK_CD2B0</sub>   | 200    | 200    | 200    | MHz  | Unused                |
|                          | F <sub>CLK_CD2B1</sub>   | 200    | 200    | 200    | MHz  | Unused                |
|                          | F <sub>CLK_CD3</sub>     | 80     | 80     | 80     | MHz  | Unused                |
|                          | F <sub>CLK_CD3A0</sub>   | 80     | 80     | 80     | MHz  |                       |
|                          | F <sub>CLK_CD3A1</sub>   | 80     | 80     | 80     | MHz  | Unused                |

| Parameter                | Symbol      | Value  |        |        | Unit | Remarks |
|--------------------------|-------------|--------|--------|--------|------|---------|
|                          |             | Max *1 | Max *2 | Max *3 |      |         |
| Internal clock frequency | FCLK_CD3B0  | 80     | 80     | 80     | MHz  | Unused  |
|                          | FCLK_CD3B1  | 80     | 80     | 80     | MHz  | Unused  |
|                          | FCLK_CD4    | 200    | 200    | 200    | MHz  |         |
|                          | FCLK_CD4A0  | 200    | 200    | 200    | MHz  | Unused  |
|                          | FCLK_CD4A1  | 200    | 200    | 200    | MHz  | Unused  |
|                          | FCLK_CD4B0  | 200    | 200    | 200    | MHz  | Unused  |
|                          | FCLK_CD4B1  | 200    | 200    | 200    | MHz  | Unused  |
|                          | FCLK_CD5    | 240    | 240    | 240    | MHz  |         |
|                          | FCLK_CD5A0  | 120    | 120    | 120    | MHz  |         |
|                          | FCLK_CD5A1  | 120    | 120    | 120    | MHz  | Unused  |
|                          | FCLK_CD5B0  | 60     | 60     | 60     | MHz  |         |
|                          | FCLK_CD5B1  | 60     | 60     | 60     | MHz  | Unused  |
|                          | FCLK_HSPI   | 200    | 200    | 200    | MHz  |         |
|                          | FCLK_SYSC0H | 80     | 66.7   | 60     | MHz  |         |
|                          | FCLK_COMH   | 80     | 66.7   | 60     | MHz  |         |
|                          | FCLK_RAM0H  | 80     | 66.7   | 60     | MHz  |         |
|                          | FCLK_RAM1H  | 80     | 66.7   | 60     | MHz  |         |
|                          | FCLK_SYSC0P | 80     | 66.7   | 60     | MHz  |         |
|                          | FCLK_COMP   | 80     | 66.7   | 60     | MHz  |         |

\*1: Target maximum clock frequencies when CPU clock = 240MHz

\*2: Target maximum clock frequencies when CPU clock = 200MHz

\*3: Target maximum clock frequencies when CPU clock = 180MHz

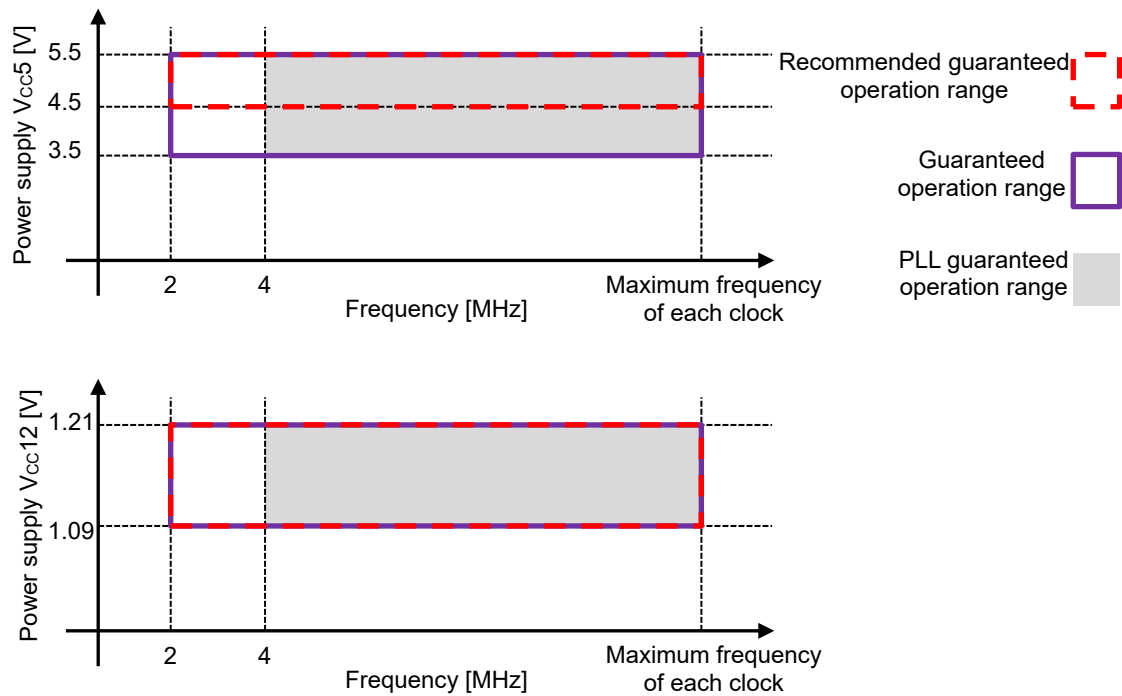
\*4: The PLLx/SSCGx cannot set under 200MHz.

- Note that Ta = 125 condition is not supported in this product type.

When using SSCG\_PLL output for these internal clock, the MAX value of frequency has the following restrictions.

- On the presumption that the modulation mode of SSCG\_PLL is used with down spread, the MAX value of the frequency is standardized.
- This means that MAX value of frequency is the maximum value when SSCG\_PLL was modulated.
- "Unused" means a clock source which doesn't have any supply destinations. Configure it as disable with performing at the lower clock frequency than the described maximum.

- Operation assurance range  
Relationship between the internal clock frequency and supply voltage

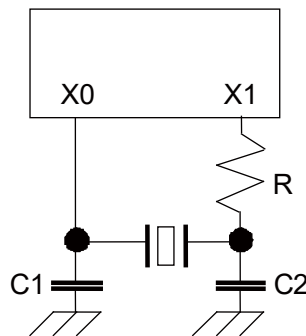


Note: CPU will be reset, when the power supply voltage is equal to or less than LVD setting voltage.

- Relationship between the oscillation clock frequency and internal clock frequency

|                                   |    | Internal Operation Clock Frequency |                 |                 |     |                  |                  |                  |                  |
|-----------------------------------|----|------------------------------------|-----------------|-----------------|-----|------------------|------------------|------------------|------------------|
|                                   |    | Main Clock                         | PLL Clock       |                 |     |                  |                  |                  |                  |
|                                   |    |                                    | Multiplied by 1 | Multiplied by 2 | ... | Multiplied by 15 | Multiplied by 30 | Multiplied by 40 | Multiplied by 60 |
| Oscillation clock frequency [MHz] | 4  | 2                                  | 4               | 8               | ... | 60               | 120              | 160              | 240              |
|                                   | 8  | 4                                  | 8               | 16              | ... | 120              | 240              |                  |                  |
|                                   | 16 | 8                                  | 16              | 32              | ... | 240              |                  |                  |                  |

- Oscillation circuit example



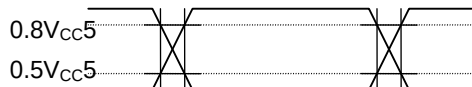
Note:

For the configuration of an oscillation circuit, request the oscillator manufacturer to perform a circuit matching evaluation before starting design.

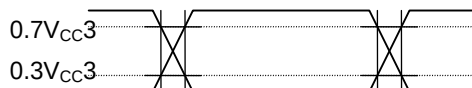
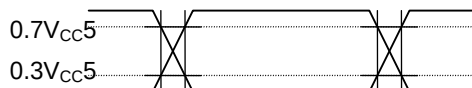
AC characteristics are specified by the following measurement reference voltage values.

- Input signal waveform

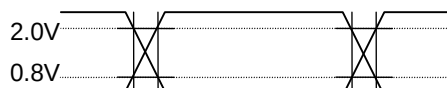
Hysteresis input pin (Automotive)



Hysteresis input pin (CMOS Schmitt)

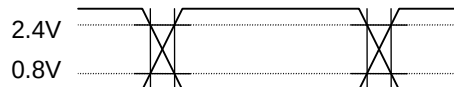


Hysteresis input pin (TTL)



- Output signal waveform

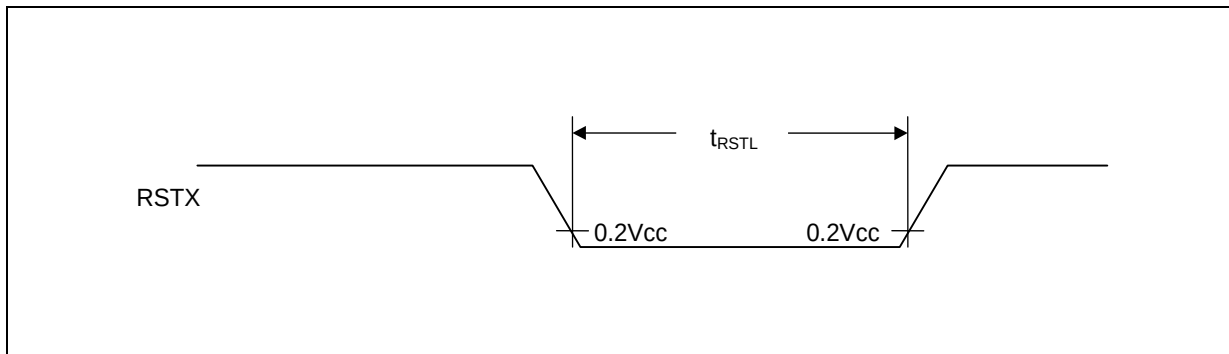
Output pin



#### 9.1.4.4 Reset Input

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ±10 %, V<sub>SS</sub> = 0.0 V)

| Parameter                     | Symbol            | Pin Name | Conditions | Value |     | Unit | Remarks |
|-------------------------------|-------------------|----------|------------|-------|-----|------|---------|
|                               |                   |          |            | Min   | Max |      |         |
| Reset input time              | t <sub>RSTL</sub> | RSTX     | -          | 10    | -   | μs   |         |
| Width for reset input removal |                   |          |            | 1     | -   | μs   |         |



#### 9.1.4.5 Power-on Conditions

(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = 0.0 V)

| Parameter                                                   | Symbol           | Pin Name | Conditions                       | Value |     |     | Unit  | Remarks |
|-------------------------------------------------------------|------------------|----------|----------------------------------|-------|-----|-----|-------|---------|
|                                                             |                  |          |                                  | Min   | Typ | Max |       |         |
| Level detection voltage                                     | -                | VCC5     | -                                | 2.2   | 2.4 | 2.6 | V     |         |
| Level detection hysteresis width                            | -                | VCC5     | -                                | -     | 100 | -   | mV    |         |
| Level detection time                                        | -                | -        | -                                | -     | -   | 40  | μs    | *1      |
| Power off time                                              | t <sub>OFF</sub> | VCC5     | -                                | 100   | -   | -   | μs    | *2      |
| Power ramp rate                                             | dV/dt            | VCC5     | VCC5:<br>1.5 V to 2.6 V          | -     | -   | 1   | V/μs  | *3      |
| Maximum ramp rate guaranteed to not generate power-on reset | dV/dt            | VCC5     | VCC5:<br>Between 2.4 V and 4.5 V | -     | -   | 50  | mV/μs | *4      |

\*1: This specification is at 1 V/μs of power ramp rate.

\*2: VCC5 must be held below 1.5 V for a minimum period of t<sub>OFF</sub>.

\*3: Power ramp rate must be 1 V/μs or less from 1.5 V to 2.6 V.

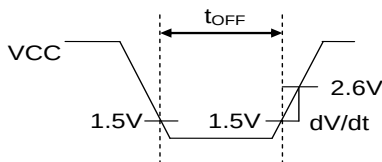
Power-on can detect by satisfying power ramp rate when power off time is satisfied.

\*4: This specification is specified the power supply fluctuation after power on detection. When VCC5 voltage is between 2.4 V and 4.5 V, the power supply fluctuation is below 50 mV/μs, the detection of power-on is suppressed. The power-on does not detect in any power fluctuation between 4.5 V and 5.5 V.

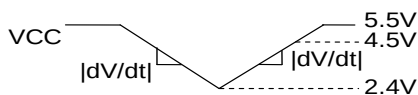
#### Notes:

When using S6J3310/20/30/40, \*2 and \*3 must be satisfied. When neither \*2 nor \*3 can be satisfied, assert external reset (RSTX) at power up and any brownout event.

#### • Power off time, Power ramp rate



#### • Maximum ramp rate guaranteed to not generate power-on reset



#### 9.1.4.6 Multi-Function Serial

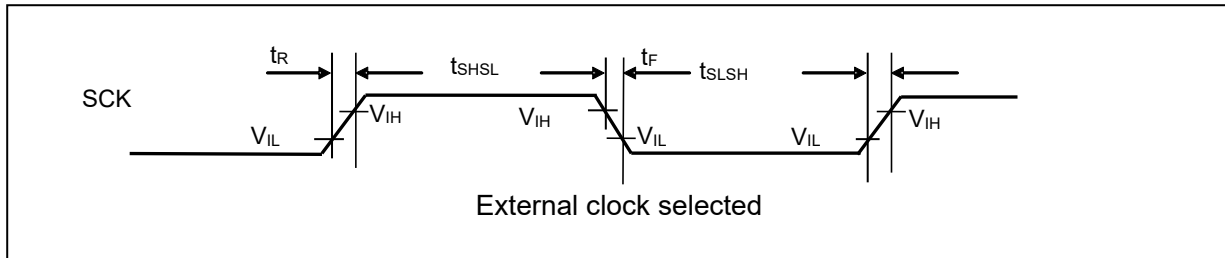
UART (asynchronous serial interface) timing (SMR:MD2-0 = 0b000, 0b001)

##### (1) External Clock Selected (BGR:EXT = 1)

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC5</sub> = DV<sub>CC</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>CC53</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = 0.0 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V)

| Parameter                    | Symbol            | Pin Name                        | Conditions | Value                            |     | Unit | Remarks |
|------------------------------|-------------------|---------------------------------|------------|----------------------------------|-----|------|---------|
|                              |                   |                                 |            | Min                              | Max |      |         |
| Serial clock "L" pulse width | t <sub>SLSH</sub> | SCK0 to SCK4,<br>SCK8 to SCK12  | -          | t <sub>CLK_LCPnA</sub> *1<br>+10 | -   | ns   |         |
|                              |                   | SCK16 to<br>SCK17               |            | t <sub>CLK_COMP</sub> +10        | -   | ns   |         |
| Serial clock "H" pulse width | t <sub>SHSL</sub> | SCK0 to SCK4,<br>SCK8 to SCK12  |            | t <sub>CLK_LCPnA</sub> *1<br>+10 | -   | ns   |         |
|                              |                   | SCK16 to<br>SCK17               |            | t <sub>CLK_COMP</sub> +10        | -   | ns   |         |
| SCK falling time             | t <sub>F</sub>    | SCK0 to SCK4,<br>SCK8 to SCK12, |            | -                                | 5   | ns   |         |
| SCK rising time              | t <sub>R</sub>    | SCK16 to<br>SCK17               |            | -                                | 5   | ns   |         |

\*1: n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12



CSIO timing (SMR:MD2-0 = 0b010)

**(1) Normal Synchronous Transfer (SCR:SPI = 0) and Mark Level "H" of Serial Clock Output (SMR:SCINV = 0)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10 % / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

| Parameter                    | Symbol             | Pin Name                                                                                                                        | Conditions                                                                     | Value                      |      | Unit | Remarks |
|------------------------------|--------------------|---------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|----------------------------|------|------|---------|
|                              |                    |                                                                                                                                 |                                                                                | Min                        | Max  |      |         |
| Serial clock cycle time      | t <sub>SCYC</sub>  | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12                                                                                 | Master Mode<br>(CL = 20 pF, I <sub>OL</sub> = -5 mA, I <sub>OH</sub> = 5 mA)   | 8t <sub>CLK_LCPnA</sub> *1 | -    | ns   | -       |
|                              |                    | SCK16 to SCK17                                                                                                                  |                                                                                | 8t <sub>CLK_COMP</sub>     | -    | ns   |         |
| SCK ↓ → SOT delay time       | t <sub>SLOVI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17 SOT0, SOT1, SOT2_1, SOT3_1, SOT4, SOT8 to SOT12, SOT16 to SOT17 |                                                                                | -30                        | +30  | ns   |         |
| Valid SIN → SCK ↑ setup time | t <sub>IVSHI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17                                                                 |                                                                                | 40                         | -    | ns   |         |
| SCK ↑ → Valid SIN hold time  | t <sub>SHIXI</sub> | SIN0, SIN1, SIN2_1, SIN3_1, SIN4, SIN8 to SIN12, SIN16 to SIN17                                                                 |                                                                                | 0                          | -    | ns   |         |
| Serial clock cycle time      | t <sub>SCYC</sub>  | SCK2_0, SCK3_0                                                                                                                  | Master Mode<br>(CL = 20 pF, I <sub>OL</sub> = -10 mA, I <sub>OH</sub> = 10 mA) | 2t <sub>CLK_LCPnA</sub> *1 | -    | ns   | -       |
| SCK ↓ → SOT delay time       | t <sub>SLOVI</sub> | SCK2_0, SCK3_0, SOT2_0, SOT3_0                                                                                                  |                                                                                | -7.5                       | +7.5 | ns   |         |
| Valid SIN → SCK ↑ setup time | t <sub>IVSHI</sub> | SCK2_0, SCK3_0, SIN2_0, SIN3_0                                                                                                  |                                                                                | 10                         | -    | ns   |         |
| SCK ↑ → Valid SIN hold time  | t <sub>SHIXI</sub> |                                                                                                                                 |                                                                                | 0                          | -    | ns   |         |

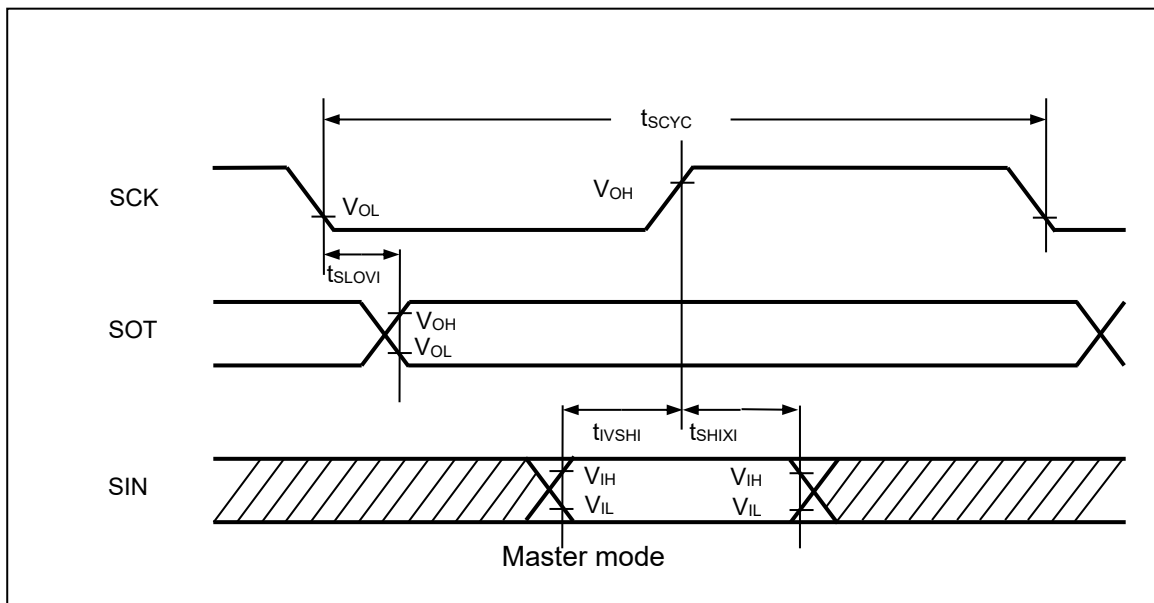


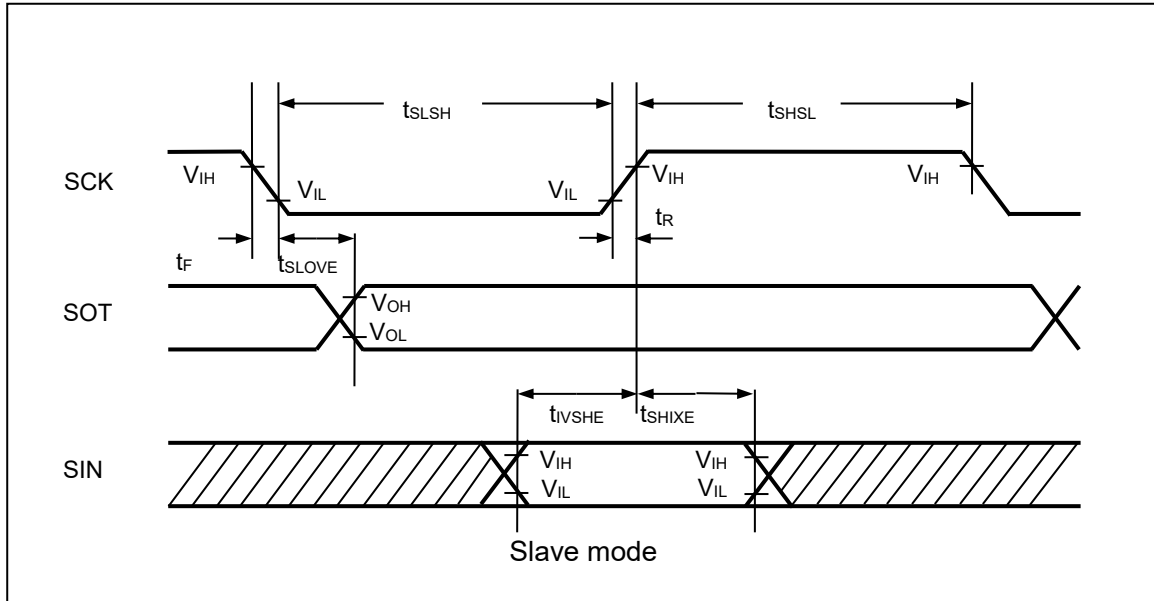
| Parameter                         | Symbol      | Pin Name                                                                                               | Conditions                                                             | Value                  |     | Unit | Remarks |
|-----------------------------------|-------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|-----|------|---------|
|                                   |             |                                                                                                        |                                                                        | Min                    | Max |      |         |
| Serial clock<br>"H" pulse width   | $t_{SHSL}$  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         | Slave<br>Mode<br>(CL = 20 pF,<br>$I_{OL} = -5$ mA,<br>$I_{OH} = 5$ mA) | $4t_{CLK\_LCPnA}^{*1}$ | -   | ns   | -       |
|                                   |             | SCK16 to SCK17                                                                                         |                                                                        | $4t_{CLK\_COMP}$       | -   | ns   |         |
| Serial clock<br>"L" pulse width   | $t_{SLSH}$  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         |                                                                        | $4t_{CLK\_LCPnA}^{*1}$ | -   | ns   |         |
|                                   |             | SCK16 to SCK17                                                                                         |                                                                        | $4t_{CLK\_COMP}$       | -   | ns   |         |
| SCK ↓ → SOT<br>delay time         | $t_{SLOVE}$ | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17<br>SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17 |                                                                        | -                      | 40  | ns   |         |
| Valid SIN → SCK<br>↑ setup time   | $t_{IVSHE}$ | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      |                                                                        | 10                     | -   | ns   |         |
| SCK ↑ → Valid<br>SIN<br>hold time | $t_{SHIXE}$ | SIN0 to SIN4,<br>SIN8 to SIN12,<br>SIN16 to SIN17                                                      |                                                                        | 10                     | -   | ns   |         |
| SCK falling time                  | $t_F$       | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      |                                                                        | -                      | 5   | ns   |         |
| SCK rising time                   | $t_R$       | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      |                                                                        | -                      | 5   | ns   |         |

\*1: n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This table provides the alternate current standard for CLK synchronous mode.
- CL is the load capability value connected to the pin at the test time.
- The maximum baud rate is limited by the internal operating clock used and other parameters.  
For details, see the Traveo™ Platform Hardware Manual.





**(2) Normal Synchronous Transfer (SCR:SPI = 0) and Mark Level "L" of Serial Clock Output (SMR:SCINV = 1)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10% / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

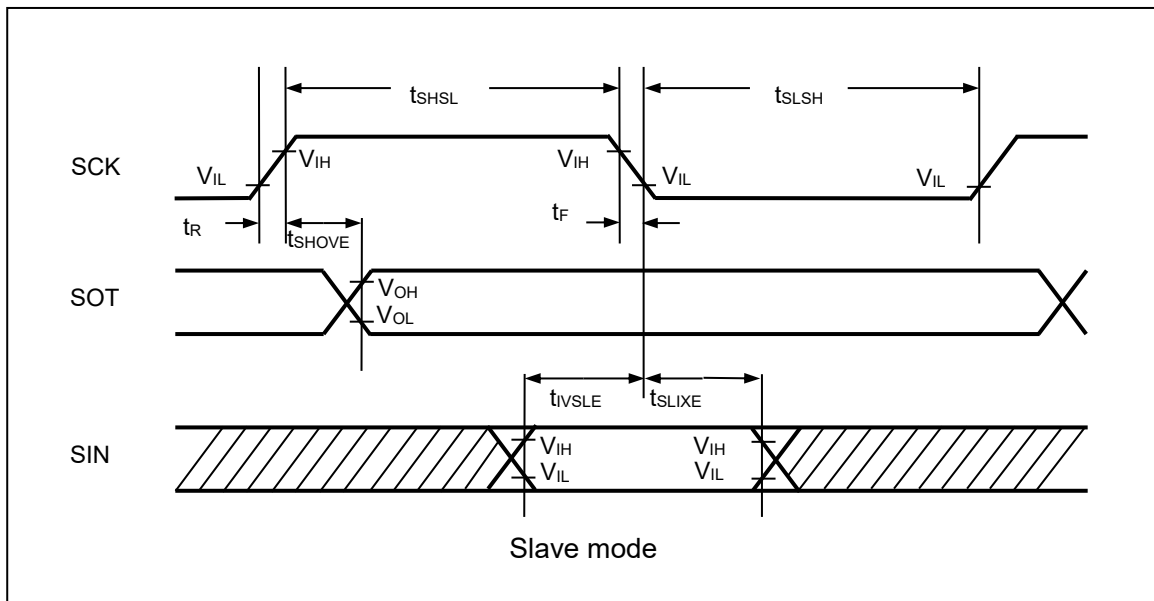
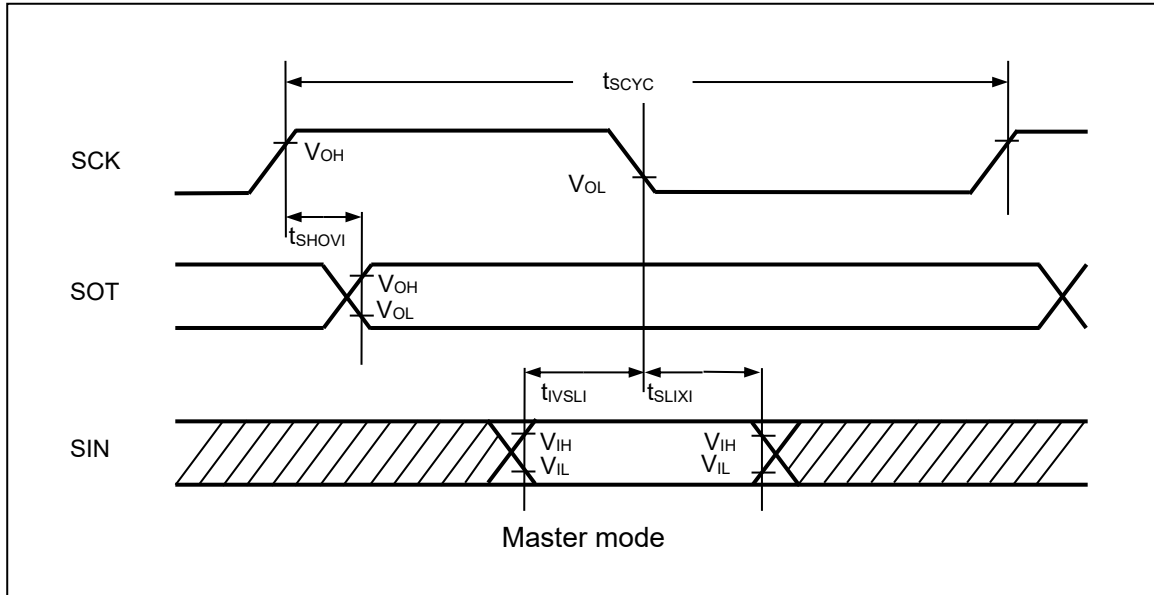
| Parameter                    | Symbol             | Pin Name                                                                                                                           | Conditions                                                                   | Value                     |     | Unit | Remarks |
|------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|---------------------------|-----|------|---------|
|                              |                    |                                                                                                                                    |                                                                              | Min                       | Max |      |         |
| Serial clock cycle time      | t <sub>SCYC</sub>  | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12                                                                                    | Master Mode<br>(CL = 20 pF, I <sub>OL</sub> = -5 mA, I <sub>OH</sub> = 5 mA) | 8t <sub>CLK_LCPH</sub> *1 | -   | ns   |         |
|                              |                    | SCK16 to SCK17                                                                                                                     |                                                                              | 8t <sub>CLK_COMP</sub>    | -   | ns   |         |
| SCK ↑ → SOT delay time       | t <sub>SHOVI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17<br>SOT0, SOT1, SOT2_1, SOT3_1, SOT4, SOT8 to SOT12, SOT16 to SOT17 |                                                                              | -30                       | +30 | ns   |         |
| Valid SIN → SCK ↓ setup time | t <sub>IVSLI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17                                                                    |                                                                              | 40                        | -   | ns   |         |
| SCK ↓ → Valid SIN hold time  | t <sub>SLIXI</sub> | SIN0, SIN1, SIN2_1, SIN3_1, SIN4, SIN8 to SIN12, SIN16 to SIN17                                                                    |                                                                              | 0                         | -   | ns   |         |

| Parameter                       | Symbol             | Pin Name                                                                                               | Conditions                                                                           | Value                                 |      | Unit | Remarks |
|---------------------------------|--------------------|--------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------|------|------|---------|
|                                 |                    |                                                                                                        |                                                                                      | Min                                   | Max  |      |         |
| Serial clock cycle time         | t <sub>SCYC</sub>  | SCK2_0, SCK3_0                                                                                         | Master Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | 2t <sub>CLK_LCPnA</sub> <sup>*1</sup> | -    | ns   |         |
| SCK ↓ → SOT delay time          | t <sub>SHOVI</sub> | SCK2_0, SCK3_0,<br>SOT2_0, SOT3_0                                                                      |                                                                                      | -7.5                                  | +7.5 | ns   |         |
| Valid SIN → SCK<br>↑ setup time | t <sub>IVSLI</sub> | SCK2_0, SCK3_0,<br>SIN2_0, SIN3_0                                                                      |                                                                                      | 10                                    | -    | ns   |         |
| SCK ↑→ Valid SIN hold time      | t <sub>SLIXI</sub> |                                                                                                        |                                                                                      | 0                                     | -    | ns   |         |
| Serial clock "H" pulse width    | t <sub>SHSL</sub>  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         | Slave Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)    | 4t <sub>CLK_LCPnA</sub> <sup>*1</sup> | -    | ns   |         |
|                                 |                    | SCK16 to SCK17                                                                                         |                                                                                      | 4t <sub>CLK_COMP</sub>                | -    | ns   |         |
| Serial clock "L" pulse width    | t <sub>LSLH</sub>  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         |                                                                                      | 4t <sub>CLK_LCPnA</sub> <sup>*1</sup> | -    | ns   |         |
|                                 |                    | SCK16 to SCK17                                                                                         |                                                                                      | 4t <sub>CLK_COMP</sub>                | -    | ns   |         |
| SCK ↑ → SOT delay time          | t <sub>SHOVE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17<br>SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17 |                                                                                      | -                                     | 40   | ns   |         |
| Valid SIN → SCK<br>↓ setup time | t <sub>IVSLE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17<br>SIN0 to SIN4,<br>SIN8 to SIN12,<br>SIN16 to SIN17 |                                                                                      | 10                                    | -    | ns   |         |
| SCK ↓ → Valid SIN hold time     | t <sub>SLIXE</sub> |                                                                                                        |                                                                                      | 10                                    | -    | ns   |         |
| SCK falling time                | t <sub>F</sub>     | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      |                                                                                      | -                                     | 5    | ns   |         |
| SCK rising time                 | t <sub>R</sub>     | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      | -                                                                                    | 5                                     | ns   |      |         |

\*1: n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This table provides the alternate current standard for CLK synchronous mode.
- CL is the load capability value connected to the pin at the test time.
- The maximum baud rate is limited by the internal operating clock used and other parameters. For details, see the Traveo™ Platform Hardware Manual.



**(3) SPI Supported (SCR:SPI = 1), and Mark Level "H" of Serial Clock Output (SMR:SCINV = 0)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10 % / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

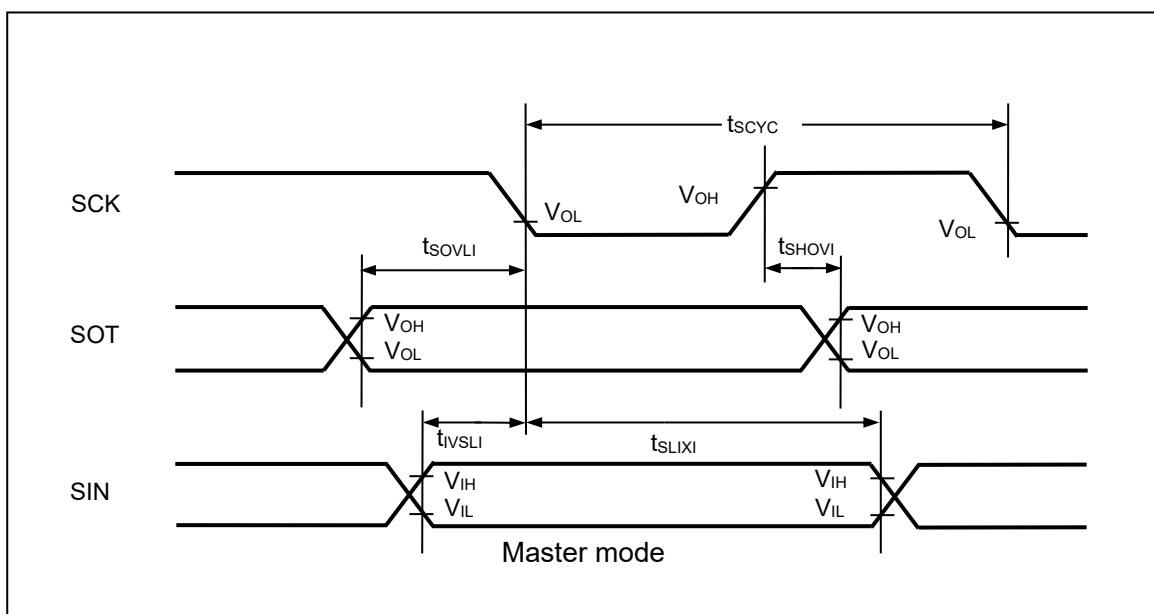
| Parameter                    | Symbol             | Pin Name                                                                                                                           | Conditions                                                                     | Value                                      |      | Unit | Remarks |
|------------------------------|--------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------|------|------|---------|
|                              |                    |                                                                                                                                    |                                                                                | Min                                        | Max  |      |         |
| Serial clock cycle time      | t <sub>SCYC</sub>  | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12                                                                                    | Master Mode<br>(CL = 20 pF, I <sub>OL</sub> = -5 mA, I <sub>OH</sub> = 5 mA)   | 8t <sub>CLK_LCPnA</sub> <sup>*1</sup>      | -    | ns   | -       |
|                              |                    | SCK16 to SCK17                                                                                                                     |                                                                                | 8t <sub>CLK_COMP</sub>                     | -    | ns   |         |
| SCK ↑ → SOT delay time       | t <sub>SHOVI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17<br>SOT0, SOT1, SOT2_1, SOT3_1, SOT4, SOT8 to SOT12, SOT16 to SOT17 |                                                                                | -30                                        | +30  | ns   |         |
| Valid SIN → SCK ↓ setup time | t <sub>IVSLI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17                                                                    |                                                                                | 40                                         | -    | ns   |         |
| SCK ↓ → Valid SIN hold time  | t <sub>SLIXI</sub> | SIN0, SIN1, SIN2_1, SIN3_1, SIN4, SIN8 to SIN12, SIN16 to SIN17                                                                    |                                                                                | 0                                          | -    | ns   |         |
| SOT → SCK ↓ delay time       | t <sub>SOVLI</sub> | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17<br>SOT0, SOT1, SOT2_1, SOT3_1, SOT4, SOT8 to SOT12, SOT16 to SOT17 |                                                                                | 4t <sub>CLK_LCPnA</sub> <sup>*1</sup> - 30 | -    | ns   |         |
|                              |                    | SCK16 to SCK17<br>SOT16 to SOT17                                                                                                   |                                                                                | 4t <sub>CLK_COMP</sub> <sup>*1</sup> - 30  | -    | ns   |         |
| Serial clock cycle time      | t <sub>SCYC</sub>  | SCK2_0, SCK3_0                                                                                                                     | Master Mode<br>(CL = 20 pF, I <sub>OL</sub> = -10 mA, I <sub>OH</sub> = 10 mA) | 2t <sub>CLK_LCPnA</sub> <sup>*1</sup>      | -    | ns   | -       |
| SCK ↑ → SOT delay time       | t <sub>SHOVI</sub> | SCK2_0, SCK3_0, SOT2_0, SOT3_0                                                                                                     |                                                                                | -7.5                                       | +7.5 | ns   |         |
| Valid SIN → SCK ↑ setup time | t <sub>IVSHI</sub> | SCK2_0, SCK3_0, SIN2_0, SIN3_0                                                                                                     |                                                                                | 10                                         | -    | ns   |         |
| SCK ↑ → Valid SIN hold time  | t <sub>SHIXI</sub> |                                                                                                                                    |                                                                                | 0                                          | -    | ns   |         |
| SOT → SCK ↓ delay time       | t <sub>SOVLI</sub> | SCK2_0, SCK3_0, SOT2_0, SOT3_0                                                                                                     |                                                                                | t <sub>CLK_LCPnA</sub> <sup>*1</sup> - 7.5 | -    | ns   |         |

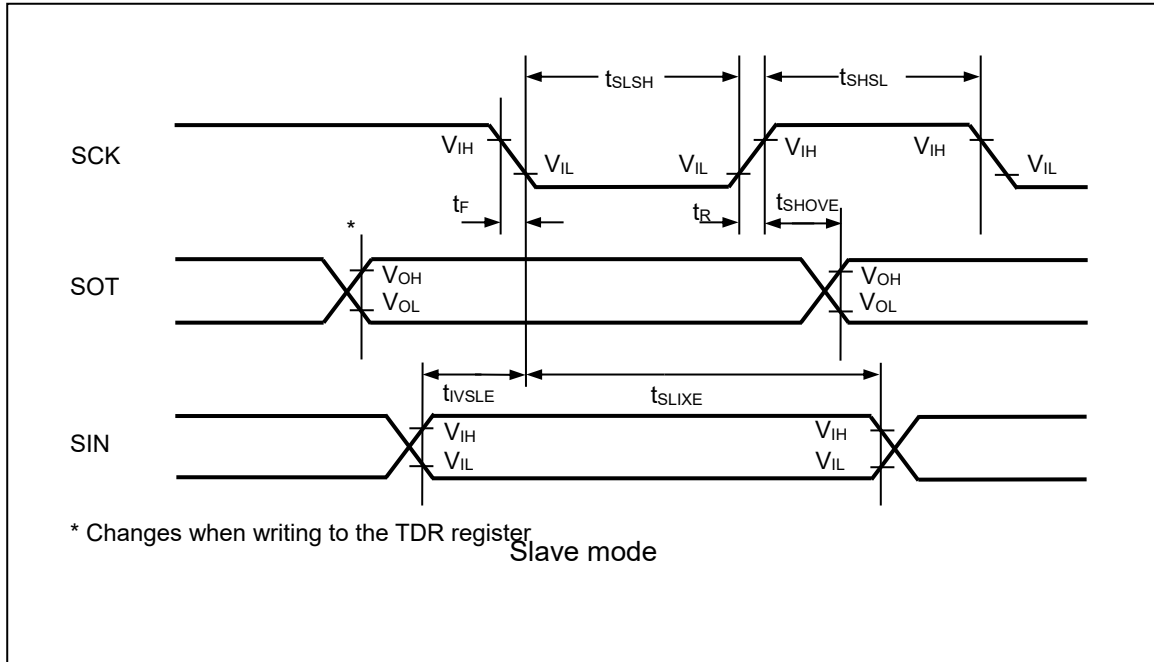
| Parameter                                              | Symbol      | Pin Name                                                                                               | Conditions                                                             | Value                  |     | Unit | Remarks |
|--------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|-----|------|---------|
|                                                        |             |                                                                                                        |                                                                        | Min                    | Max |      |         |
| Serial clock<br>"H" pulse width                        | $t_{SHSL}$  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         | Slave<br>Mode<br>(CL = 20 pF,<br>$I_{OL} = -5$ mA,<br>$I_{OH} = 5$ mA) | $4t_{CLK\_LCPnA}^{*1}$ | -   | ns   |         |
|                                                        |             | SCK16 to SCK17                                                                                         |                                                                        | $4t_{CLK\_COMP}$       | -   | ns   |         |
| Serial clock<br>"L" pulse width                        | $t_{SLSH}$  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         |                                                                        | $4t_{CLK\_LCPnA}^{*1}$ | -   | ns   |         |
|                                                        |             | SCK16 to SCK17                                                                                         |                                                                        | $4t_{CLK\_COMP}$       | -   | ns   |         |
| SCK $\uparrow \rightarrow$ SOT<br>delay time           | $t_{SHOVE}$ | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17<br>SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17 |                                                                        | -                      | 40  | ns   |         |
| Valid SIN $\rightarrow$ SCK<br>$\downarrow$ setup time | $t_{IVSLE}$ | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      |                                                                        | 10                     | -   | ns   |         |
| SCK $\downarrow \rightarrow$ Valid<br>SIN hold time    | $t_{SLIXE}$ | SIN0 to SIN4,<br>SIN8 to SIN12,<br>SIN16 to SIN17                                                      |                                                                        | 10                     | -   | ns   |         |
| SCK falling time                                       | $t_F$       | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCK16 to SCK17                                                       |                                                                        | -                      | 5   | ns   |         |
| SCK rising time                                        | $t_R$       | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCK16 to SCK17                                                       |                                                                        | -                      | 5   | ns   |         |

\*1: n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This table provides the alternate current standard for CLK synchronous mode.
- CL is the load capability value connected to the pin at the test time.
- The maximum baud rate is limited by the internal operating clock used and other parameters.  
For details, see the Traveo™ Platform Hardware Manual.







**(4) SPI Supported (SCR:SPI = 1), and Mark Level "L" of Serial Clock Output (SMR:SCINV = 1)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

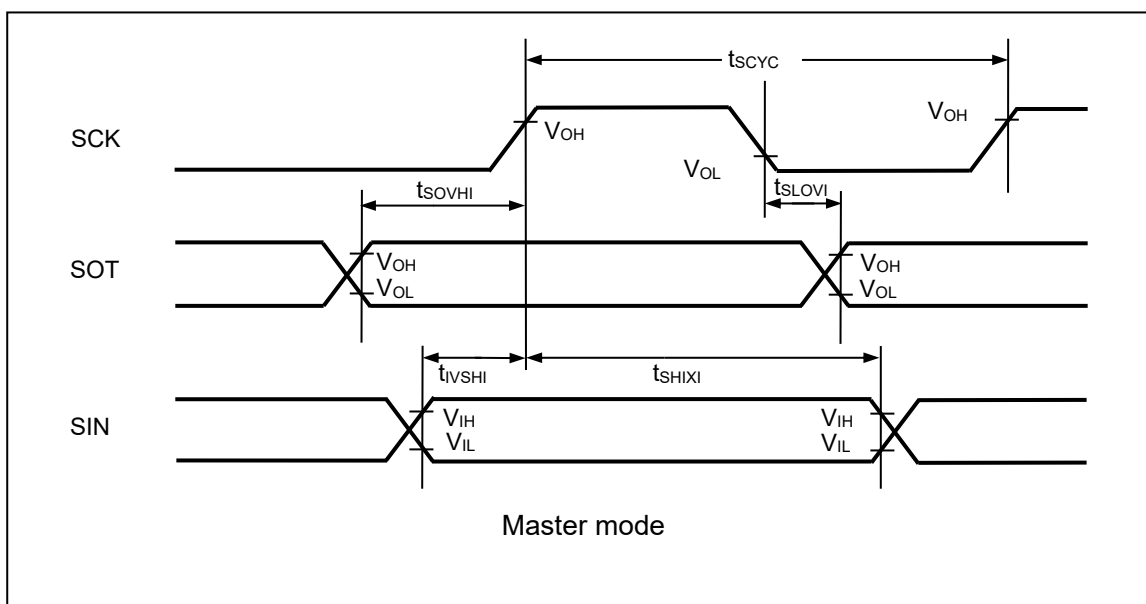
| Parameter                     | Symbol | Pin Name                                                                                                                           | Conditions                                             | Value              |      | Unit | Remarks |
|-------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|--------------------|------|------|---------|
|                               |        |                                                                                                                                    |                                                        | Min                | Max  |      |         |
| Serial clock cycle time       | tSCYC  | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12                                                                                    | Master Mode<br>(CL = 20 pF, IOL = -5 mA, IOH = 5 mA)   | 8tCLK_LCPnA*1      | -    | ns   | -       |
|                               |        | SCK16 to SCK17                                                                                                                     |                                                        | 8tCLK_COMP         | -    | ns   |         |
| SCK ↓ -> SOT delay time       | tSLOVI | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17<br>SOT0, SOT1, SOT2_1, SOT3_1, SOT4, SOT8 to SOT12, SOT16 to SOT17 |                                                        | -30                | +30  | ns   |         |
| Valid SIN -> SCK ↑ setup time | tIVSHI | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17                                                                    |                                                        | 40                 | -    | ns   |         |
| SCK ↑ -> Valid SIN hold time  | tSHIXI | SIN0, SIN1, SIN2_1, SIN3_1, SIN4, SIN8 to SIN12, SIN16 to SIN17                                                                    |                                                        | 0                  | -    | ns   |         |
| SOT -> SCK ↑ delay time       | tSOVHI | SCK0, SCK1, SCK2_1, SCK3_1, SCK4, SCK8 to SCK12, SCK16 to SCK17<br>SOT0, SOT1, SOT2_1, SOT3_1, SOT4, SOT8 to SOT12, SOT16 to SOT17 |                                                        | 4tCLK_LCPnA*1 - 30 | -    | ns   |         |
|                               |        | SCK16 to SCK17<br>SOT16 to SOT17                                                                                                   |                                                        | 4tCLK_COMP - 30    | -    | ns   |         |
| Serial clock cycle time       | tSCYC  | SCK2_0, SCK3_0                                                                                                                     | Master Mode<br>(CL = 20 pF, IOL = -10 mA, IOH = 10 mA) | 2tCLK_LCPnA*1      | -    | ns   | -       |
| SCK ↓ -> SOT delay time       | tSLOVI | SCK2_0, SCK3_0, SOT2_0, SOT3_0                                                                                                     |                                                        | -7.5               | +7.5 | ns   |         |
| Valid SIN -> SCK ↑ setup time | tIVSHI | SCK2_0, SCK3_0, SIN2_0, SIN3_0                                                                                                     |                                                        | 10                 | -    | ns   |         |
| SCK ↑ -> Valid SIN hold time  | tSHIXI |                                                                                                                                    |                                                        | 0                  | -    | ns   |         |
| SOT -> SCK ↑ delay time       | tSOVHI | SCK2_0, SCK3_0, SOT2_0, SOT3_0                                                                                                     |                                                        | tCLK_LCPnA*1 - 7.5 | -    | ns   |         |

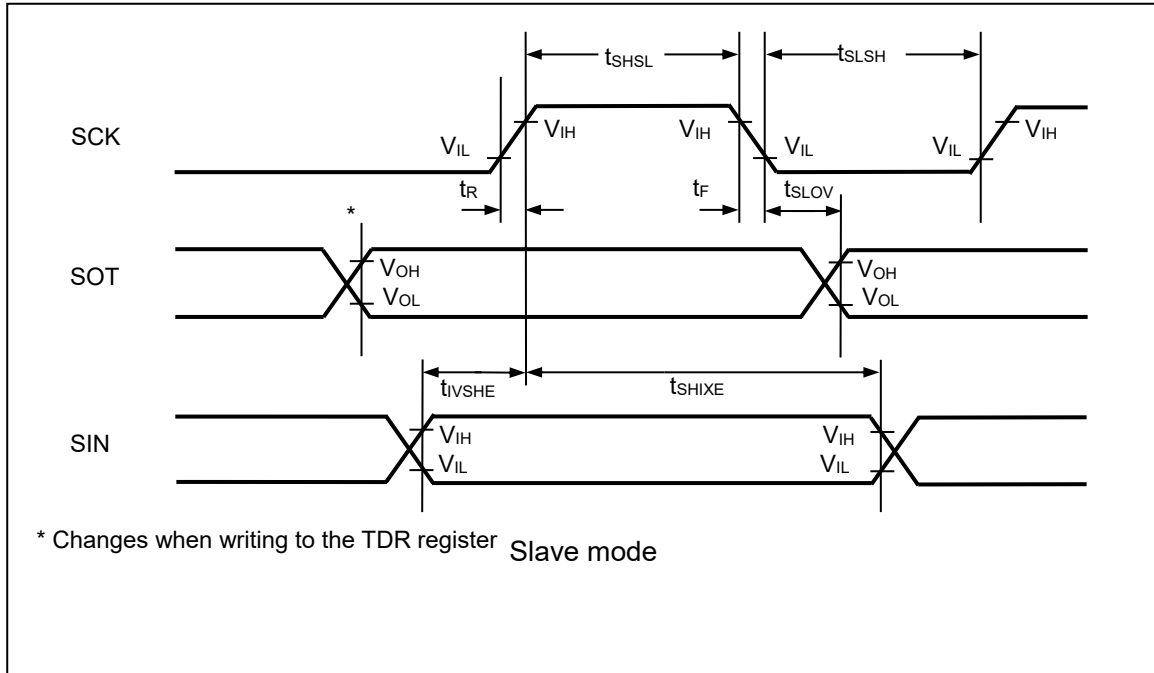
| Parameter                        | Symbol      | Pin Name                                                                                               | Conditions                                                             | Value                  |     | Unit | Remarks |
|----------------------------------|-------------|--------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|------------------------|-----|------|---------|
|                                  |             |                                                                                                        |                                                                        | Min                    | Max |      |         |
| Serial clock<br>"H" pulse width  | $t_{SHSL}$  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         | Slave<br>Mode<br>(CL = 20 pF,<br>$I_{OL} = -5$ mA,<br>$I_{OH} = 5$ mA) | $4t_{CLK\_LCPnA}^{*1}$ | -   | ns   | -       |
|                                  |             | SCK16 to SCK17                                                                                         |                                                                        | $4t_{CLK\_COMP}$       | -   | ns   |         |
| Serial clock<br>"L" pulse width  | $t_{SLSH}$  | SCK0 to SCK4,<br>SCK8 to SCK12                                                                         |                                                                        | $4t_{CLK\_LCPnA}^{*1}$ | -   | ns   |         |
|                                  |             | SCK16 to SCK17                                                                                         |                                                                        | $4t_{CLK\_COMP}$       | -   | ns   |         |
| SCK ↓ -> SOT<br>delay time       | $t_{SLOVE}$ | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17<br>SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17 |                                                                        | -                      | 40  | ns   |         |
| Valid SIN -> SCK<br>↑ setup time | $t_{IVSHE}$ | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                                      |                                                                        | 10                     | -   | ns   |         |
| SCK ↑ -> Valid<br>SIN hold time  | $t_{SHIXE}$ | SIN0 to SIN4,<br>SIN8 to SIN12,<br>SIN16 to SIN17                                                      |                                                                        | 10                     | -   | ns   |         |
| SCK falling time                 | $t_F$       | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCK16 to SCK17                                                       |                                                                        | -                      | 5   | ns   |         |
| SCK rising time                  | $t_R$       | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCK16 to SCK17                                                       |                                                                        | -                      | 5   | ns   |         |

\*1: n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This table provides the alternate current standard for CLK synchronous mode.
- CL is the load capability value connected to the pin at the test time.
- The maximum baud rate is limited by the internal operating clock used and other parameters.  
For details, see the Traveo™ Platform Hardware Manual.





**(5) Serial Chip Select Used (SCSCR:CSEN = 1)**

■ Mark level "H" of serial clock output (SMR, SCSFR:SCINV = 0)

■ Inactive level "H" of serial chip select (SCSCR, SCSFR:CSLVL = 1)

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10% / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10% / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

| Parameter                   | Symbol            | Pin Name                                                                                                      | Conditions                                                                              | Value                                                                        |     | Unit | Remarks |
|-----------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----|------|---------|
|                             |                   |                                                                                                               |                                                                                         | Min                                                                          | Max |      |         |
| SCS ↑ → SCK ↓<br>setup time | t <sub>CSSI</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                      | Master<br>Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | t <sub>CSSU</sub> <sup>*1-15</sup>                                           | -   | ns   |         |
| SCK ↑ → SCS ↑<br>hold time  | t <sub>CSHI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x                           |                                                                                         | t <sub>CSHD</sub> <sup>*2+0</sup>                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x                                                |                                                                                         | t <sub>CSDS</sub> <sup>*3-15</sup><br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | t <sub>CSDS</sub> <sup>*3-15</sup><br>+5t <sub>CLK_COMP</sub>                | -   | ns   |         |
| SCS ↑ → SCK ↓<br>setup time | t <sub>CSSI</sub> | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                           | Master<br>Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | t <sub>CSSU</sub> <sup>*1-10</sup>                                           | -   | ns   |         |
| SCK ↑ → SCS ↑<br>hold time  | t <sub>CSHI</sub> |                                                                                                               |                                                                                         | t <sub>CSHD</sub> <sup>*2+0</sup>                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> |                                                                                                               |                                                                                         | t <sub>CSDS</sub> <sup>*3-10</sup><br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
| SCS ↓ → SCK ↓<br>setup time | t <sub>CSSE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCS0x to SCS4x,<br>SCS8x to SCS12x                                          | Slave<br>Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)    | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+15                                 | -   | ns   |         |
|                             |                   | SCK16 to SCK17,<br>SCS16x to SCS17x                                                                           |                                                                                         | 4t <sub>CLK_COMP</sub><br>+15                                                | -   | ns   |         |
| SCK ↑ → SCS ↑<br>hold time  | t <sub>CSHE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17,<br>SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x |                                                                                         | 0                                                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDE</sub> | SCS0x to SCS4x,<br>SCS8x to SCS12x                                                                            |                                                                                         | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+15                                 | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | 4t <sub>CLK_COMP</sub><br>+15                                                | -   | ns   |         |
| SCS ↓ → SOT<br>delay time   | t <sub>DSE</sub>  | SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x,                                                      |                                                                                         | -                                                                            | 40  | ns   |         |
| SCS ↑ → SOT<br>delay time   | t <sub>DEE</sub>  | SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17                                                             |                                                                                         | 0                                                                            | -   | ns   |         |

| Parameter                                | Symbol           | Pin Name                                                                                                                 | Conditions                                                                                                    | Value                                       |                                               | Unit | Remarks |
|------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------|-----------------------------------------------|------|---------|
|                                          |                  |                                                                                                                          |                                                                                                               | Min                                         | Max                                           |      |         |
| SCK ↓ → SCS ↓<br>clock switching<br>time | t <sub>SCC</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+0 | 4t <sub>CLK_LCPnA</sub> <sup>*</sup><br>4 +15 | ns   |         |
|                                          |                  | SCK16 to SCK17<br>SCS16x to SCS17x                                                                                       |                                                                                                               | 4t <sub>CLK_COMP</sub> +0                   | 4t <sub>CLK_COMP</sub><br>+15                 | ns   |         |
|                                          |                  | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                                      | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+0 | 4t <sub>CLK_LCPnA</sub> <sup>*</sup><br>4 +10 | ns   |         |

<sup>\*1</sup>: t<sub>CSSU</sub> = SCSTR:CSSU[7:0] x serial chip select timing operating clock

<sup>\*2</sup>: t<sub>CSDH</sub> = SCSTR:CSDH[7:0] x serial chip select timing operating clock

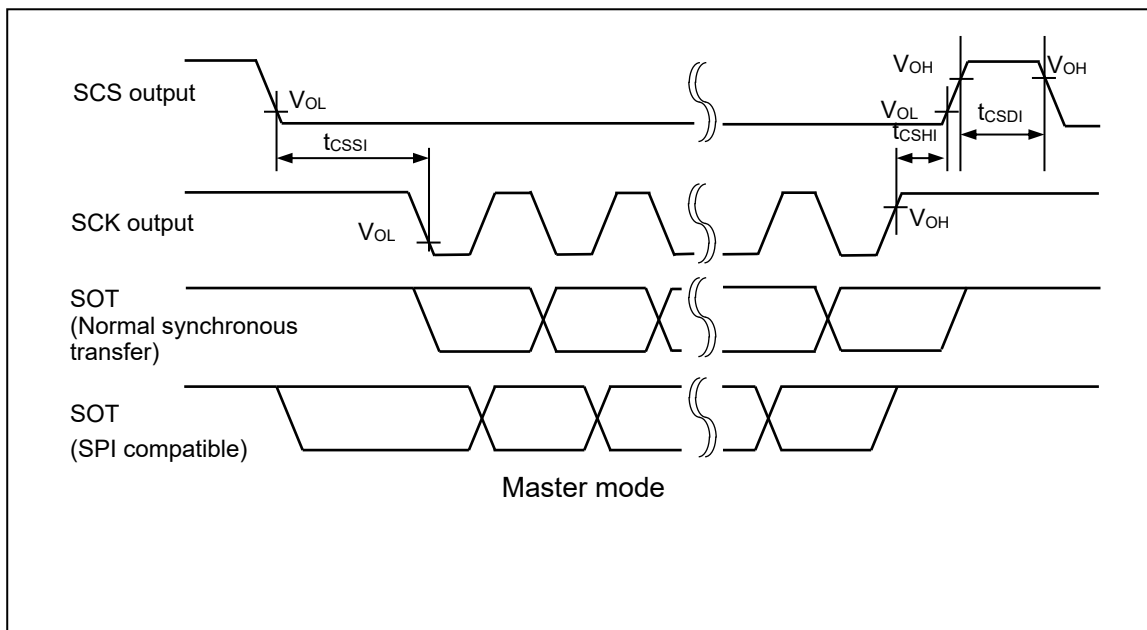
<sup>\*3</sup>: t<sub>CSDS</sub> = SCSTR:CSDS[15:0] x serial chip select timing operating clock

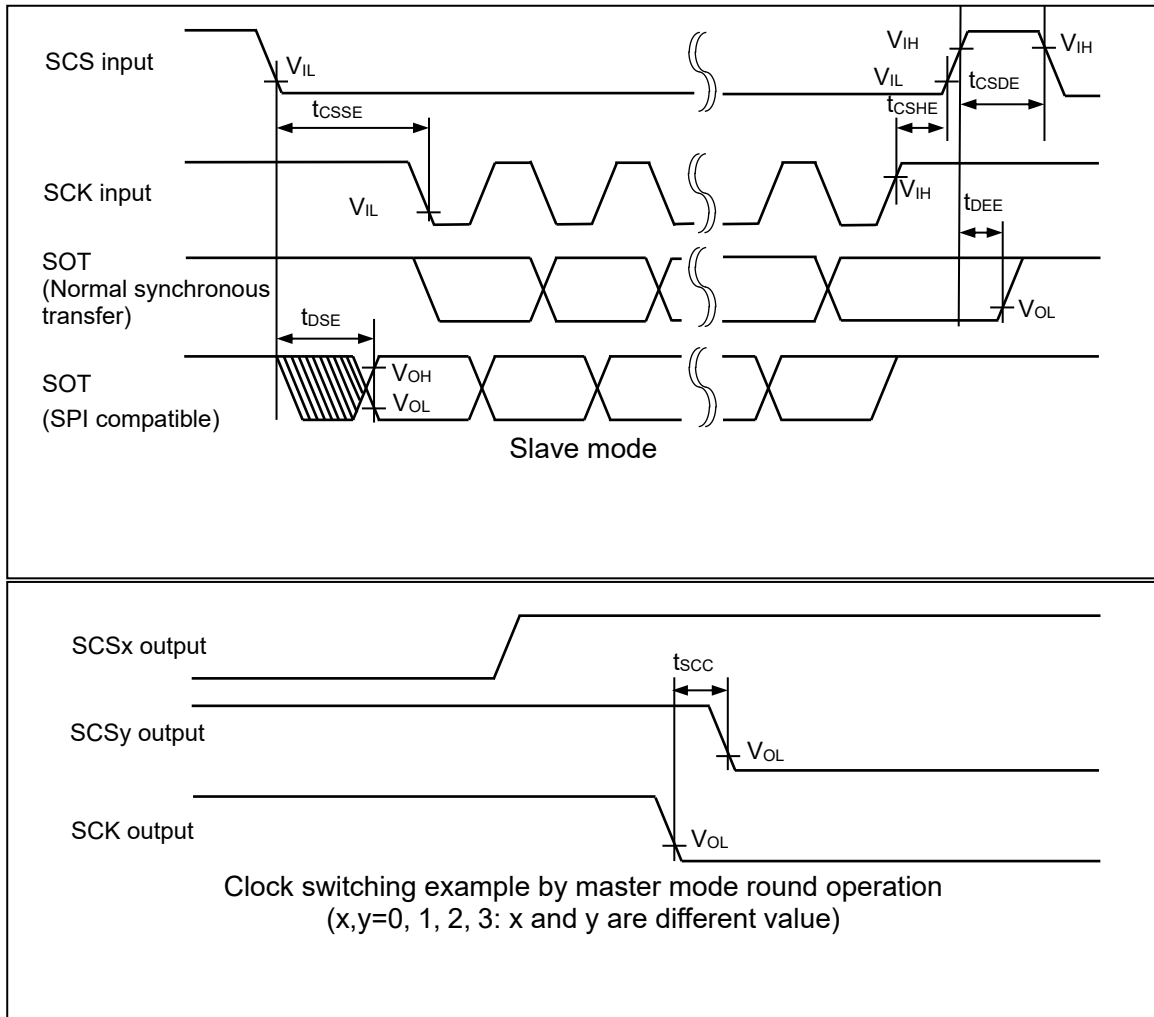
For details on <sup>\*1</sup>, <sup>\*2</sup>, and <sup>\*3</sup> above, see the Traveo™ Platform Hardware Manual.

<sup>\*4</sup> t<sub>CLK\_LCPnA</sub> n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

#### Notes:

- This is the AC characteristic in CLK synchronized mode.
  - CL is the load capacitance applied to pins during testing.
  - The maximum baud rate is limited by the internal operating clock used and other parameters.
- For details, see the Traveo™ Platform Hardware Manual.





**(6) Serial Chip Select Used (SCSCR:CSEN = 1)**

■ Serial clock output signal detect level "L" (SMR, SCSFR:SCINV = 1)

■ Serial chip select inactive level "H" (SCSCR, SCSFR:CSLVL = 1)

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10 % / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

| Parameter                   | Symbol            | Pin Name                                                                                                      | Conditions                                                                              | Value                                                                        |     | Unit | Remarks |
|-----------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----|------|---------|
|                             |                   |                                                                                                               |                                                                                         | Min                                                                          | Max |      |         |
| SCS ↓ → SCK ↑<br>setup time | t <sub>CSSI</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                      | Master<br>mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | t <sub>CSSU</sub> <sup>*1-15</sup>                                           | -   | ns   |         |
| SCK ↓ → SCS ↑<br>hold time  | t <sub>CSHI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x                           |                                                                                         | t <sub>CSHD</sub> <sup>*2+0</sup>                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x                                                |                                                                                         | t <sub>CSDS</sub> <sup>*3-15</sup><br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | t <sub>CSDS</sub> <sup>*3-15</sup><br>+5t <sub>CLK_COMP</sub>                | -   | ns   |         |
| SCS ↓ → SCK ↑<br>setup time | t <sub>CSSI</sub> | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                           | Master<br>Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | t <sub>CSSU</sub> <sup>*1-10</sup>                                           | -   | ns   |         |
| SCK ↓ → SCS ↑<br>hold time  | t <sub>CSHI</sub> |                                                                                                               |                                                                                         | t <sub>CSHD</sub> <sup>*2+0</sup>                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> |                                                                                                               |                                                                                         | t <sub>CSDS</sub> <sup>*3-10</sup><br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
| SCS ↓ → SCK ↑<br>setup time | t <sub>CSSE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCS0x to SCS4x,<br>SCS8x to SCS12x                                         | Slave<br>mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)    | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+15                                 | -   | ns   |         |
|                             |                   | SCK16 to SCK17,<br>SCS16x to SCS17x                                                                           |                                                                                         | 4t <sub>CLK_COMP</sub><br>+15                                                | -   | ns   |         |
| SCK ↓ → SCS ↑<br>hold time  | t <sub>CSHE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17,<br>SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x |                                                                                         | 0                                                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDE</sub> | SCS0x to SCS4x,<br>SCS8x to SCS12x                                                                            |                                                                                         | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+15                                 | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | 4t <sub>CLK_COMP</sub><br>+15                                                | -   | ns   |         |
| SCS ↓ → SOT<br>delay time   | t <sub>DSE</sub>  | SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x,                                                      |                                                                                         | -                                                                            | 40  | ns   |         |
| SCS ↑ → SOT<br>delay time   | t <sub>DEE</sub>  | SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17                                                             |                                                                                         | 0                                                                            | -   | ns   |         |

| Parameter                                | Symbol           | Pin Name                                                                                                                 | Conditions                                                                                                    | Value                                       |                                             | Unit | Remarks |
|------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------|---------------------------------------------|------|---------|
|                                          |                  |                                                                                                                          |                                                                                                               | Min                                         | Max                                         |      |         |
| SCK ↑ → SCS ↓<br>clock switching<br>time | t <sub>SCC</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+0 | 4t <sub>CLK_LCPnA</sub> <sup>*</sup><br>+15 | ns   |         |
|                                          |                  | SCK16 to SCK17<br>SCS16x to SCS17x                                                                                       |                                                                                                               | 4t <sub>CLK_COMP</sub> +0                   | 4t <sub>CLK_COMP</sub><br>+15               | ns   |         |
|                                          |                  | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                                      | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+0 | 4t <sub>CLK_LCPnA</sub> <sup>*</sup><br>+10 | ns   |         |

\*1: t<sub>CSSU</sub> = SCSTR:CSSU[7:0] x serial chip select timing operating clock

\*2: t<sub>CSDH</sub> = SCSTR:CSDH[7:0] x serial chip select timing operating clock

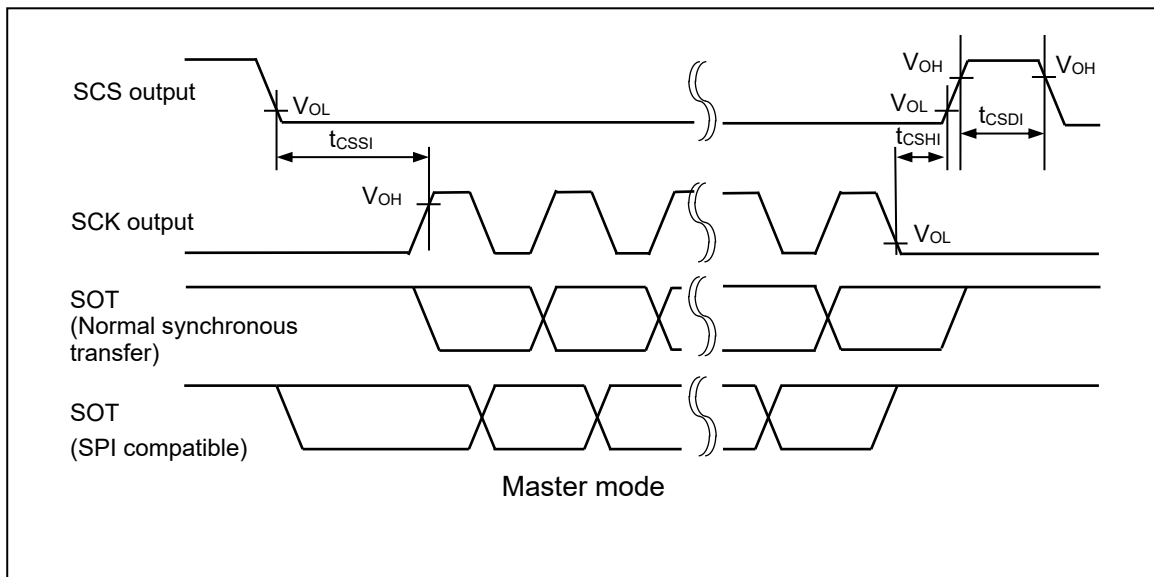
\*3: t<sub>CSDS</sub> = SCSTR:CSDS[15:0] x serial chip select timing operating clock

For details on \*1, \*2, and \*3 above, see the Traveo™ Platform Hardware Manual.

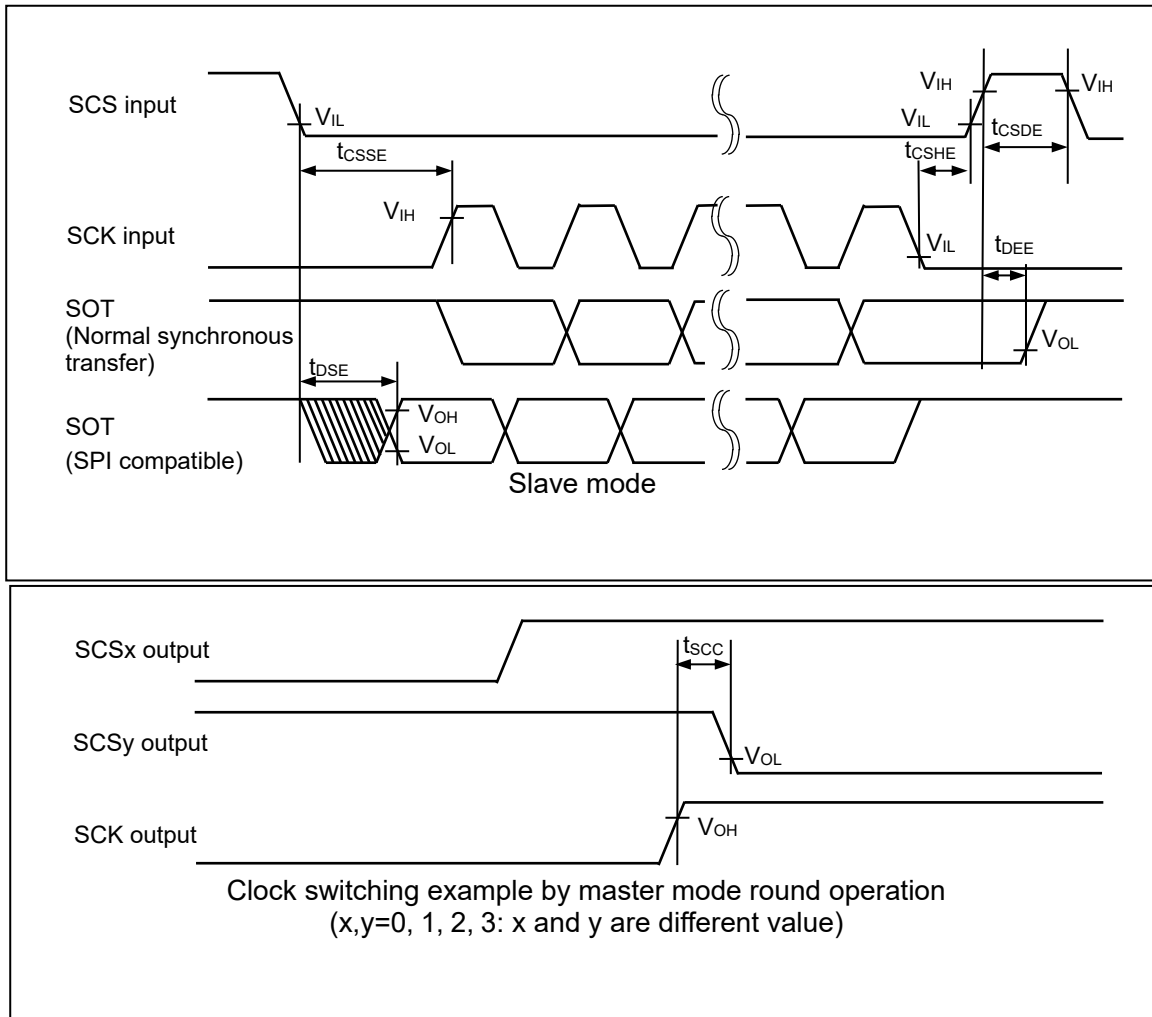
\*4 t<sub>CLK\_LCPnA</sub> n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This is the AC characteristic in CLK synchronized mode.
- CL is the load capacitance applied to pins during testing.
- The maximum baud rate is limited by the internal operating clock used and other parameters.  
For details, see the Traveo™ Platform Hardware Manual.







**(7) Serial Chip Select Used (SCSCR:CSEN = 1)**

■ Serial clock output signal detect level "H" (SMR, SCSFR:SCINV = 0)

■ Serial Chip select inactive level "L" (SCSCR, SCSFR:CSLVL = 0

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10 % / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

| Parameter                   | Symbol            | Pin Name                                                                                                      | Conditions                                                                              | Value                                                                             |     | Unit | Remarks |
|-----------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----|------|---------|
|                             |                   |                                                                                                               |                                                                                         | Min                                                                               | Max |      |         |
| SCS ↑ → SCK ↓<br>setup time | t <sub>CSSI</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                      | Master<br>mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | t <sub>CSSU</sub> <sup>*1</sup> -15                                               | -   | ns   |         |
| SCK ↑ → SCS ↓<br>hold time  | t <sub>CSHI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x                           |                                                                                         | t <sub>CSHD</sub> <sup>*2</sup> +0                                                | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x                                                |                                                                                         | t <sub>CSDS</sub> <sup>*3</sup> -15<br>+5<br>t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | t <sub>CSDS</sub> <sup>*3</sup> -15<br>+5t <sub>CLK_COMP</sub>                    | -   | ns   |         |
| SCS ↑ → SCK ↓<br>setup time | t <sub>CSSI</sub> | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                           | Master<br>Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | t <sub>CSSU</sub> <sup>*1</sup> -10                                               | -   | ns   |         |
| SCK ↑ → SCS ↓<br>hold time  | t <sub>CSHI</sub> |                                                                                                               |                                                                                         | t <sub>CSHD</sub> <sup>*2</sup> +0                                                | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> |                                                                                                               |                                                                                         | t <sub>CSDS</sub> <sup>*3</sup> -10<br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup>     | -   | ns   |         |
| SCS ↑ → SCK ↓<br>setup time | t <sub>CSSE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCS0x to SCS4x,<br>SCS8x to SCS12x                                          | Slave<br>mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)    | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+15                                      | -   | ns   |         |
|                             |                   | SCK16 to SCK17,<br>SCS16x to SCS17x                                                                           |                                                                                         | 4t <sub>CLK_COMP</sub><br>+15                                                     | -   | ns   |         |
| SCK ↑ → SCS ↓<br>hold time  | t <sub>CSHE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17,<br>SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x |                                                                                         | 0                                                                                 | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDE</sub> | SCS0x to SCS4x,<br>SCS8x to SCS12x                                                                            |                                                                                         | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup><br>+15                                      | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | 4t <sub>CLK_COMP</sub><br>+15                                                     | -   | ns   |         |
| SCS ↑ → SOT<br>delay time   | t <sub>DSE</sub>  | SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x,                                                      |                                                                                         | -                                                                                 | 40  | ns   |         |
| SCS ↓ → SOT<br>delay time   | t <sub>DEE</sub>  | SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17                                                             |                                                                                         | 0                                                                                 | -   | ns   |         |

| Parameter                                | Symbol           | Pin Name                                                                                                                | Conditions                                                                                                    | Value                                        |                                  | Unit | Remarks |
|------------------------------------------|------------------|-------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------|----------------------------------|------|---------|
|                                          |                  |                                                                                                                         |                                                                                                               | Min                                          | Max                              |      |         |
| SCK ↓ → SCS ↑<br>clock switching<br>time | t <sub>SCC</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12<br>SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | 4t <sub>CLK_LCPnA</sub> * <sup>4</sup><br>+0 | 4t <sub>CLK_LCPnA</sub> *<br>+15 | ns   |         |
|                                          |                  | SCK16 to SCK17<br>SCS16x to SCS17x                                                                                      |                                                                                                               | 4t <sub>CLK_COMP</sub> +0                    | 4t <sub>CLK_COMP</sub><br>+15    | ns   |         |
|                                          |                  | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                                     | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | 4t <sub>CLK_LCPnA</sub> *<br>+0              | 4t <sub>CLK_LCPnA</sub> *<br>+10 | ns   |         |

\*1: t<sub>CSSU</sub> = SCSTR:CSSU[7:0] x serial chip select timing operating clock

\*2: t<sub>CSDH</sub> = SCSTR:CSDH[7:0] x serial chip select timing operating clock

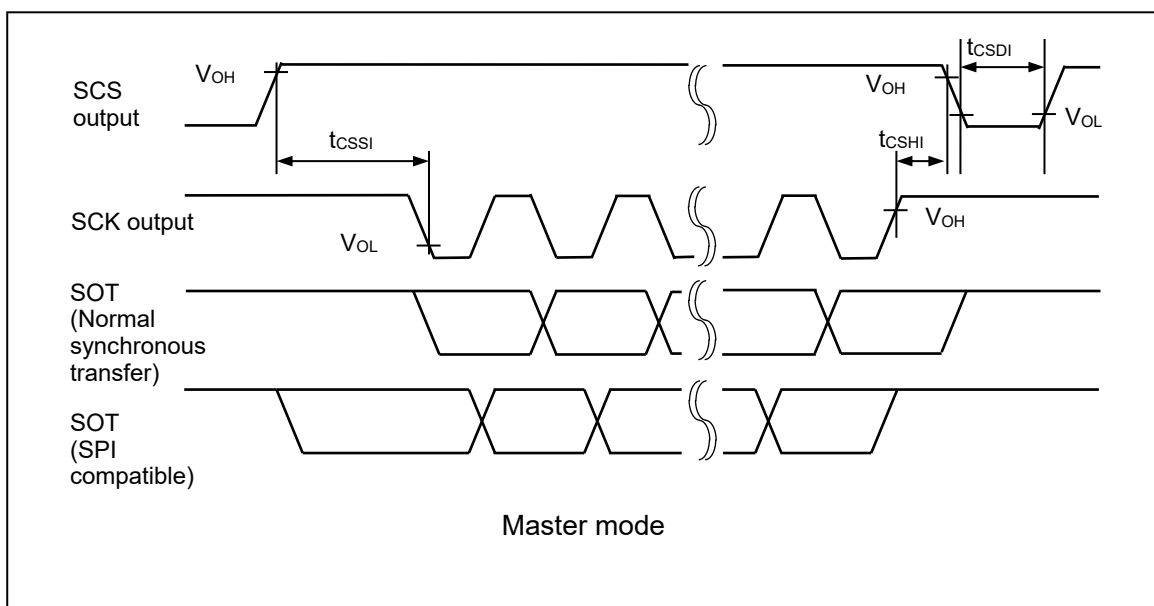
\*3: t<sub>CSDS</sub> = SCSTR:CSDS[15:0] x serial chip select timing operating clock

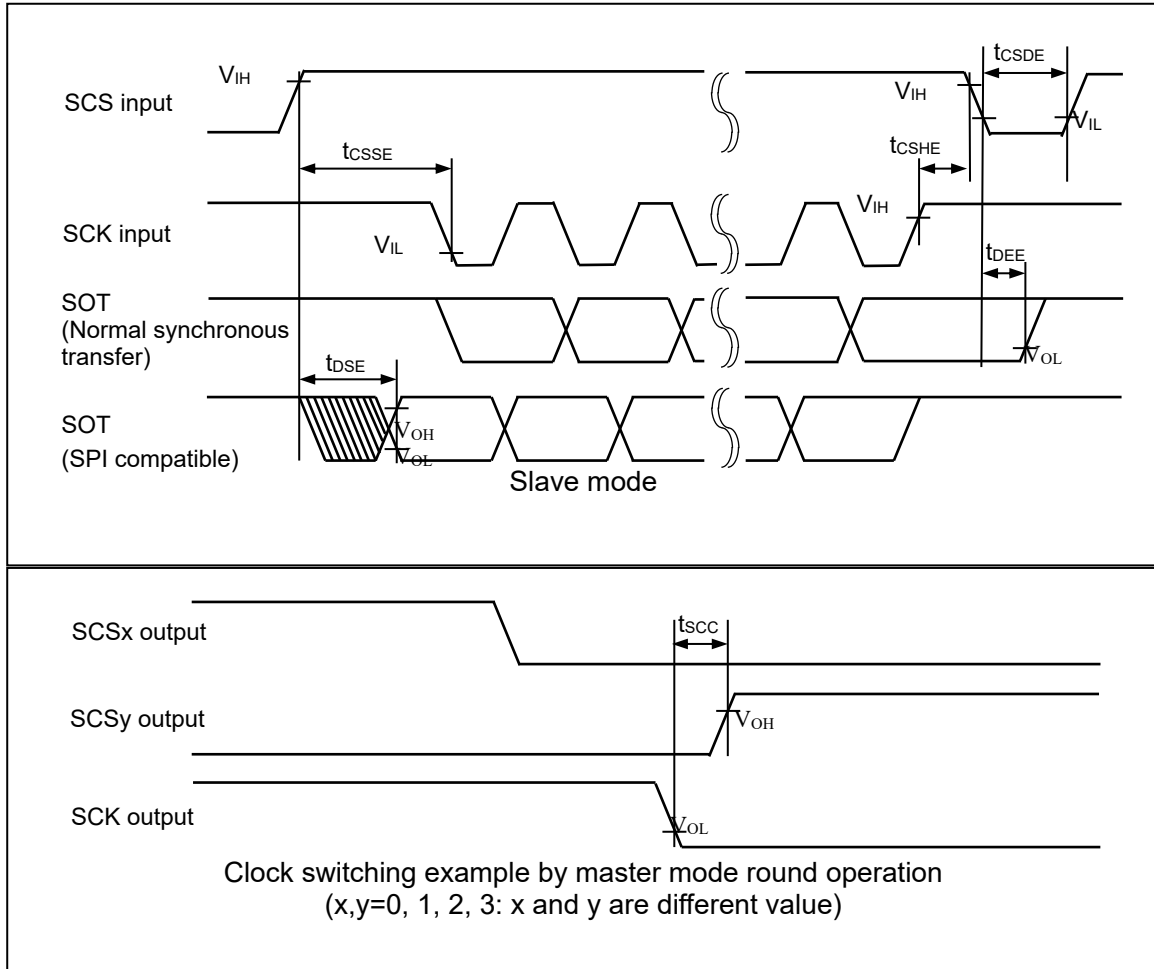
For details on \*1, \*2, and \*3 above, see the Traveo™ Platform Hardware Manual.

\*4 t<sub>CLK\_LCPnA</sub> n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This is the AC characteristic in CLK synchronized mode.
- CL is the load capacitance applied to pins during testing.
- The maximum baud rate is limited by the internal operating clock used and other parameters.  
For details, see the Traveo™ Platform Hardware Manual.





**(8) Serial Chip Select Used (SCSCR:CSEN = 1)**

■ Serial clock output signal detect level "L" (SMR, SCSFR:SCINV = 1)

■ Serial Chip select inactive level "L" (SCSCR, SCSFR:CSLVL = 0)

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vcc5 = DVcc = 5.0 V ± 10 % / 3.3 V ± 0.3 V,

Vcc53 = 5.0 V ± 10 % / 3.3 V ± 0.3 V, Vss = DVss = 0.0 V, Vcc12 = 1.15 V ± 0.06 V)

| Parameter                   | Symbol            | Pin Name                                                                                                      | Conditions                                                                              | Value                                                                        |     | Unit | Remarks |
|-----------------------------|-------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|------------------------------------------------------------------------------|-----|------|---------|
|                             |                   |                                                                                                               |                                                                                         | Min                                                                          | Max |      |         |
| SCS ↑ → SCK ↑<br>setup time | t <sub>CSSI</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17                                      | Master<br>mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | t <sub>CSSU</sub> <sup>*1-15</sup>                                           | -   | ns   |         |
| SCK ↓ → SCS ↓<br>hold time  | t <sub>CSHI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x                           |                                                                                         | t <sub>CSHD</sub> <sup>*2+0</sup>                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> | SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x                                                |                                                                                         | t <sub>CSDS</sub> <sup>*3-15</sup><br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | t <sub>CSDS</sub> <sup>*3-15</sup><br>+5t <sub>CLK_COMP</sub>                | -   | ns   |         |
| SCS ↑ → SCK ↑<br>setup time | t <sub>CSSI</sub> | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                           | Master<br>Mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | t <sub>CSSU</sub> <sup>*1-10</sup>                                           | -   | ns   |         |
| SCK ↓ → SCS ↓<br>hold time  | t <sub>CSHI</sub> |                                                                                                               |                                                                                         | t <sub>CSHD</sub> <sup>*2+0</sup>                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDI</sub> |                                                                                                               |                                                                                         | t <sub>CSDS</sub> <sup>*3-10</sup><br>+5t <sub>CLK_LCPnA</sub> <sup>*4</sup> | -   | ns   |         |
| SCS ↑ → SCK ↑<br>setup time | t <sub>CSSE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12<br>SCS0x to SCS4x,<br>SCS8x to SCS12x                                          | Slave<br>mode<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)    | 4t <sub>CLK_LCPnA</sub> <sup>*4+</sup><br>15                                 | -   | ns   |         |
|                             |                   | SCK16 to SCK17,<br>SCS16x to SCS17x                                                                           |                                                                                         | 4t <sub>CLK_COMP</sub> <sup>+</sup><br>15                                    | -   | ns   |         |
| SCK ↓ → SCS ↓<br>hold time  | t <sub>CSHE</sub> | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to SCK17,<br>SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x |                                                                                         | 0                                                                            | -   | ns   |         |
| SCS<br>deselect time        | t <sub>CSDE</sub> | SCS0x to SCS4x,<br>SCS8x to SCS12x                                                                            |                                                                                         | 4t <sub>CLK_LCPnA</sub> <sup>*4+</sup><br>15                                 | -   | ns   |         |
|                             |                   | SCS16x to SCS17x                                                                                              |                                                                                         | 4t <sub>CLK_COMP</sub> <sup>+</sup><br>5                                     | -   | ns   |         |
| SCS ↑ → SOT<br>delay time   | t <sub>DSE</sub>  | SCS0x to SCS4x,<br>SCS8x to SCS12x,<br>SCS16x to SCS17x,                                                      |                                                                                         | -                                                                            | 40  | ns   |         |
| SCS ↓ → SOT<br>delay time   | t <sub>DEE</sub>  | SOT0 to SOT4,<br>SOT8 to SOT12,<br>SOT16 to SOT17                                                             |                                                                                         | 0                                                                            | -   | ns   |         |

| Parameter                                | Symbol           | Pin Name                                                                                                                 | Conditions                                                                                                    | Value                                         |                                       | Unit | Remarks |
|------------------------------------------|------------------|--------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------|------|---------|
|                                          |                  |                                                                                                                          |                                                                                                               | Min                                           | Max                                   |      |         |
| SCK ↑ → SCS ↑<br>clock switching<br>time | t <sub>SCC</sub> | SCK0, SCK1, SCK2_1,<br>SCK3_1, SCK4,<br>SCK8 to SCK12,<br>SCS0x, SCS1x,<br>SCS2x_1,<br>SCS3x_1, SCS4,<br>SCS8x to SCS12x | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)   | 4t <sub>CLK_LCPnA</sub> * <sup>4</sup> +<br>0 | 4t <sub>CLK_LCPnA</sub> *<br>4<br>+15 | ns   |         |
|                                          |                  | SCK16 to SCK17,<br>SCS16x to SCS17x                                                                                      |                                                                                                               | 4t <sub>CLK_COMP</sub> +0                     | 4t <sub>CLK_COMP</sub><br>+15         | ns   |         |
|                                          |                  | SCK2_0, SCK3_0,<br>SCS2x_0, SCS3x_0                                                                                      | Master<br>mode<br>round<br>operation<br>(CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA) | 4t <sub>CLK_LCPnA</sub> * <sup>4</sup><br>+0  | 4t <sub>CLK_LCPnA</sub> *<br>4<br>+10 | ns   |         |

\*1: t<sub>CSSU</sub> = SCSTR:CSSU[7:0] x serial chip select timing operating clock

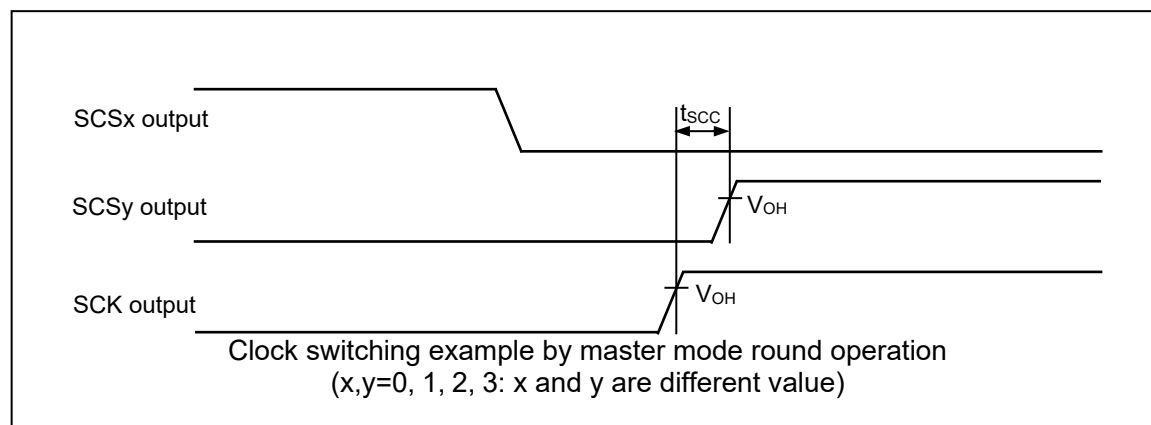
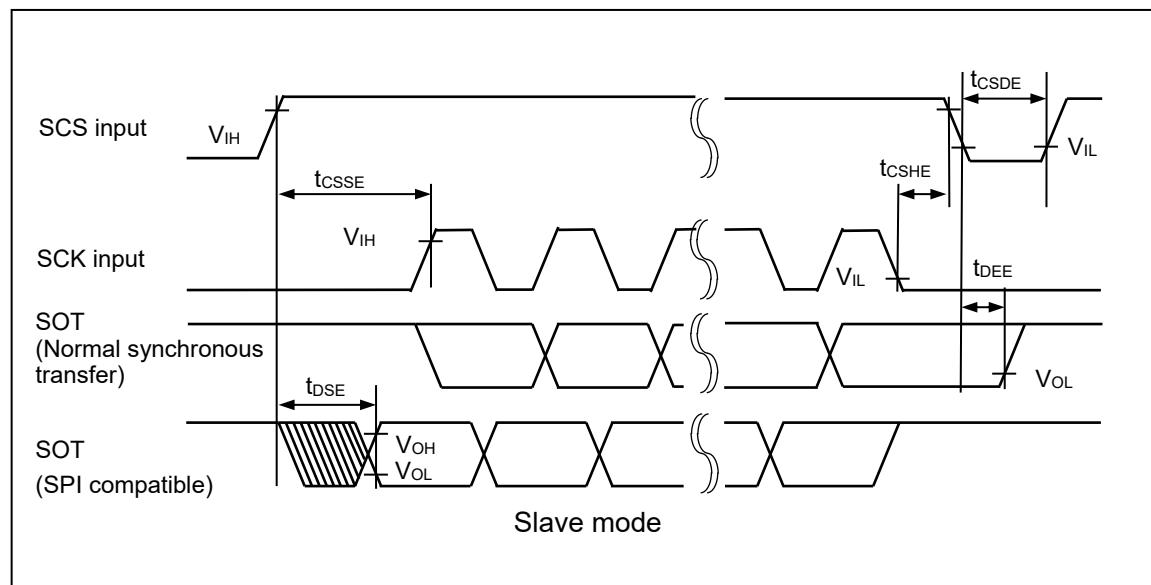
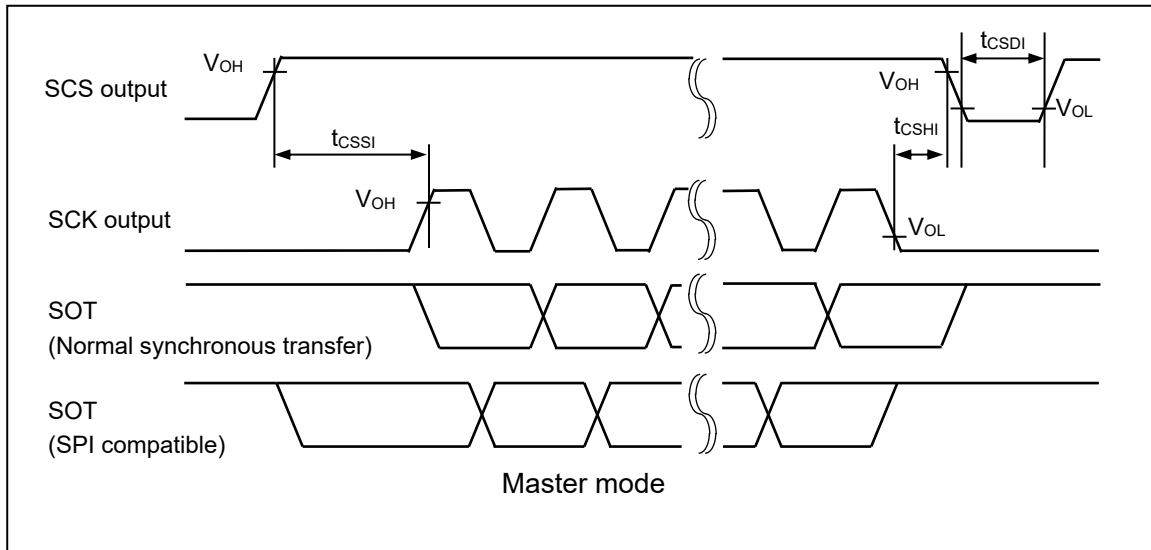
\*2: t<sub>CSDH</sub> = SCSTR:CSDH[7:0] x serial chip select timing operating clock

\*3: t<sub>CSDS</sub> = SCSTR:CSDS[15:0] x serial chip select timing operating clock  
For details on \*1, \*2, and \*3 above, see the Traveo™ Platform Hardware Manual.

\*4 t<sub>CLK\_LCPnA</sub> n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12

**Notes:**

- This is the AC characteristic in CLK synchronized mode.
- CL is the load capacitance applied to pins during testing.
- The maximum baud rate is limited by the internal operating clock used and other parameters.  
For details, see the Traveo™ Platform Hardware Manual.



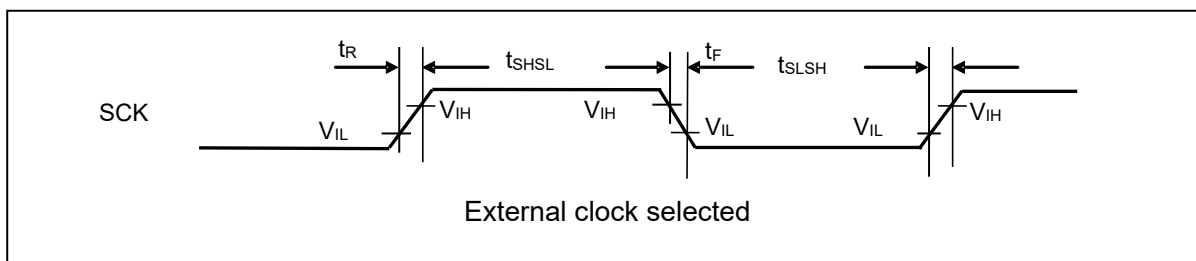
LIN interface (v2.1) (LIN communication control interface (v2.1)) timing (SMR:MD2-0 = 0b011)

### (1) External Clock Selected (BGR:EXT = 1)

(T<sub>A</sub>: Recommended operating conditions, V<sub>cc3</sub> = 3.3 V ± 0.3 V, V<sub>cc5</sub> = DV<sub>cc</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>cc53</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>ss</sub> = DV<sub>ss</sub> = 0.0 V, V<sub>cc12</sub> = 1.15 V ± 0.06 V)

| Parameter                       | Symbol            | Pin Name                                             | Conditions | Value                                    |     | Unit | Remarks |
|---------------------------------|-------------------|------------------------------------------------------|------------|------------------------------------------|-----|------|---------|
|                                 |                   |                                                      |            | Min                                      | Max |      |         |
| Serial clock<br>"L" pulse width | t <sub>SLSH</sub> | SCK0 to SCK4,<br>SCK8 to SCK12                       | -          | t <sub>CLK_LCPnA</sub> <sup>*1</sup> +10 | -   | ns   |         |
|                                 |                   | SCK16 to<br>SCK17                                    |            | t <sub>CLK_COMP</sub> +10                | -   | ns   |         |
| Serial clock<br>"H" pulse width | t <sub>SHSL</sub> | SCK0 to SCK4,<br>SCK8 to SCK12                       |            | t <sub>CLK_LCPnA</sub> <sup>*1</sup> +10 | -   | ns   |         |
|                                 |                   | SCK16 to<br>SCK17                                    |            | t <sub>CLK_COMP</sub> +10                | -   | ns   |         |
| SCK falling time                | t <sub>F</sub>    | SCK0 to SCK4,<br>SCK8 to SCK12,<br>SCK16 to<br>SCK17 |            | -                                        | 5   | ns   |         |
| SCK rising time                 | t <sub>R</sub>    |                                                      |            | -                                        | 5   | ns   |         |

\*1: n = 0:ch.0 to ch.4, n = 1:ch.8 to ch.12





I<sup>2</sup>C timing (SMR:MD2-0 = 0b100)

(TA: Recommended operating conditions, V<sub>CC5</sub> = V<sub>CC53</sub> = 5.0 V ± 10 %, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = 0.0 V)

| Parameter                                                    | Symbol             | Pin Name                                                                                        | Conditions                                                                   | Standard Mode                  |                    | Fast Mode                      |                   | Unit | Remarks |
|--------------------------------------------------------------|--------------------|-------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|--------------------------------|--------------------|--------------------------------|-------------------|------|---------|
|                                                              |                    |                                                                                                 |                                                                              | Min                            | Max                | Min                            | Max               |      |         |
| SCL clock frequency                                          | f <sub>SCL</sub>   | SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17                                                 | C <sub>L</sub> = 50 pF, R = (V <sub>p</sub> /I <sub>OL</sub> ) <sup>*1</sup> | 0                              | 100                | 0                              | 400               | kHz  |         |
| Repeat "start" condition hold time SDA↓ → SCL↓               | t <sub>HDSTA</sub> | SDA0, SDA1, SDA4 SDA8 to SDA12, SDA16 to SDA17, SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17 |                                                                              | 4.0                            | -                  | 0.6                            | -                 | μs   |         |
| Period of "L" for SCL clock                                  | t <sub>LOW</sub>   | SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17                                                 |                                                                              | 4.7                            | -                  | 1.3                            | -                 | μs   |         |
| Period of "H" for SCL clock                                  | t <sub>HIGH</sub>  |                                                                                                 |                                                                              | 4.0                            | -                  | 0.6                            | -                 | μs   |         |
| Repeat "start" condition setup time SCL↑ → SDA↓              | t <sub>SUSTA</sub> | SDA0, SDA1, SDA4 SDA8 to SDA12, SDA16 to SDA17, SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17 |                                                                              | 4.7                            | -                  | 0.6                            | -                 | μs   |         |
| Data hold time SCL↓ → SDA↑↑                                  | t <sub>HDDAT</sub> |                                                                                                 |                                                                              | 0                              | 3.45 <sup>*2</sup> | 0                              | 0.9 <sup>*3</sup> | μs   |         |
| Data setup time SDA↑↑ → SCL↑                                 | t <sub>SUDAT</sub> |                                                                                                 |                                                                              | 250                            | -                  | 100                            | -                 | ns   |         |
| "Stop" condition setup time SCL↑ → SDA↑                      | t <sub>SUSTO</sub> |                                                                                                 |                                                                              | 4.0                            | -                  | 0.6                            | -                 | μs   |         |
| Bus-free time between "stop" condition and "start" condition | t <sub>BUF</sub>   | -                                                                                               |                                                                              | 4.7                            | -                  | 1.3                            | -                 | μs   |         |
| Noise filter                                                 | t <sub>SP</sub>    | -                                                                                               |                                                                              | t <sub>NFT</sub> <sup>*4</sup> | -                  | t <sub>NFT</sub> <sup>*4</sup> | -                 | ns   |         |

Notes: Only ch.16 and ch.17 are standard mode/high-speed mode correspondence. In ch.0, ch.1, ch.4, and ch.8 to ch.12, only a standard mode is correspondence.

\*1: R and C<sub>L</sub> represent the pull-up resistance and load capacitance of the SCL and SDA output lines, respectively.

V<sub>p</sub> shows that the power-supply voltage of the pull-up resistor and I<sub>OL</sub> shows the V<sub>OL</sub> guarantee current.

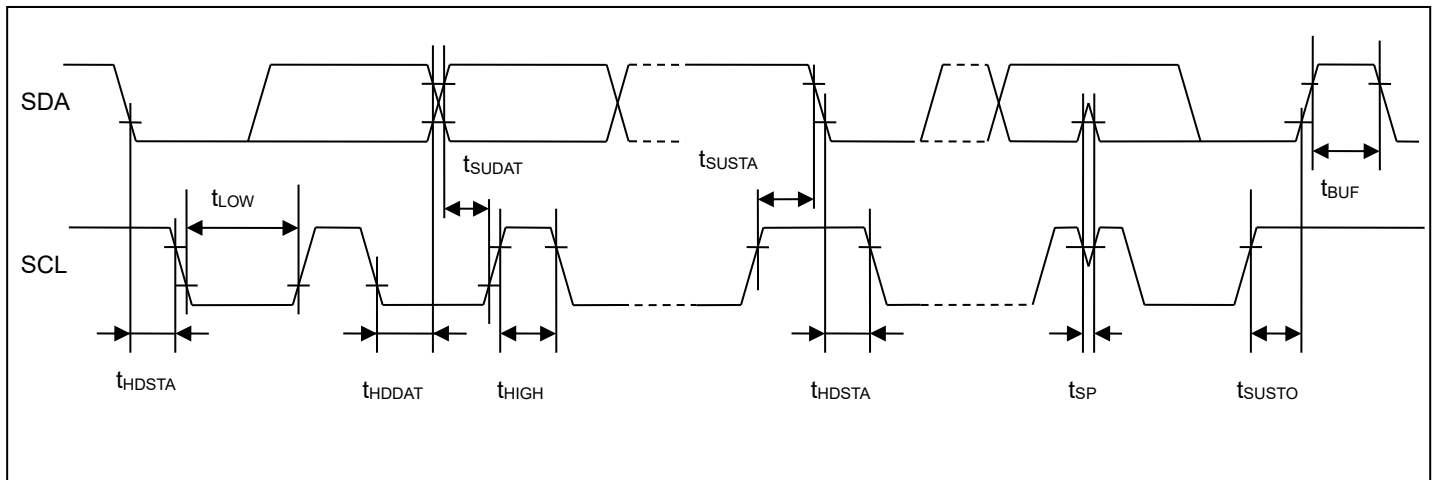
\*2: The maximum t<sub>HDDAT</sub> only has to be met if the device does not extend the "L" width (t<sub>LOW</sub>) of the SCL signal.

\*3: A fast mode I<sup>2</sup>C bus device can be used on a standard mode I<sup>2</sup>C bus system as long as the device satisfies the requirement of "t<sub>SUDAT</sub> ≥ 250 ns".

\*4: t<sub>NFT</sub> = (NFCR:NFT[4:0]+1) × 2 × t<sub>CLK\_LCP0A</sub> (ch.0, ch.1, ch4)

t<sub>NFT</sub> = (NFCR:NFT[4:0]+1) × 2 × t<sub>CLK\_LCP1A</sub> (ch.8 to ch.12)

t<sub>NFT</sub> = (NFCR:NFT[4:0]+1) × 2 × t<sub>CLK\_COMP</sub> (ch.16 to ch.17)



#### 9.1.4.7 Timer Input

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC5</sub> = DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC53</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = 0.0 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V)

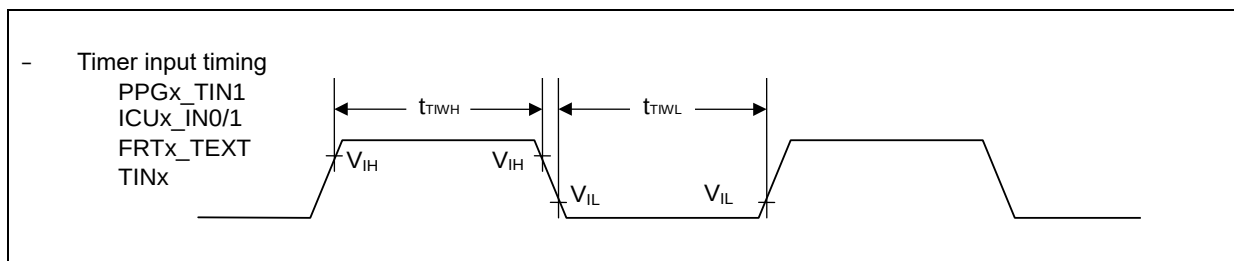
| Parameter         | Symbol                              | Pin Name                                                                                 | Conditions | Value                                              |     | Unit | Remarks                                        |
|-------------------|-------------------------------------|------------------------------------------------------------------------------------------|------------|----------------------------------------------------|-----|------|------------------------------------------------|
|                   |                                     |                                                                                          |            | Min                                                | Max |      |                                                |
| Input pulse width | t <sub>TWH</sub> , t <sub>TWL</sub> | PPG0_TIN1 to PPG31_TIN1                                                                  | -          | 4t <sub>CLK_LCPnA</sub> <sup>*1</sup> <sub>1</sub> | -   | ns   | 4t <sub>CLK_LCPnA</sub> <sup>*1</sup> ≥ 100 ns |
|                   |                                     |                                                                                          |            | 100                                                |     |      | 4t <sub>CLK_LCPnA</sub> <sup>*1</sup> < 100 ns |
|                   |                                     | ICU0_IN0 to ICU2_IN0, ICU8_IN0 to ICU10_IN0, ICU0_IN1 to ICU2_IN1, ICU8_IN1 to ICU10_IN1 | -          | 4t <sub>CLK_LCPnA</sub> <sup>*2</sup> <sub>2</sub> | -   | ns   | 4t <sub>CLK_LCPnA</sub> <sup>*2</sup> ≥ 100 ns |
|                   |                                     |                                                                                          |            | 100                                                |     |      | 4t <sub>CLK_LCPnA</sub> <sup>*2</sup> < 100 ns |
|                   |                                     | FRT0_TEXT to FRT4_TEXT, FRT8_TEXT to FRT10_TEXT                                          | -          | 4t <sub>CLK_LCPnA</sub> <sup>*3</sup> <sub>3</sub> | -   | ns   | 4t <sub>CLK_LCPnA</sub> <sup>*3</sup> ≥ 100 ns |
|                   |                                     |                                                                                          |            | 100                                                |     |      | 4t <sub>CLK_LCPnA</sub> <sup>*3</sup> < 100 ns |
|                   |                                     | TIN0 to TIN1, TIN16 to TIN17                                                             | -          | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup> <sub>4</sub> | -   | ns   | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup> ≥ 100 ns |
|                   |                                     |                                                                                          |            | 100                                                |     |      | 4t <sub>CLK_LCPnA</sub> <sup>*4</sup> < 100 ns |
|                   |                                     | TIN48 to TIN49                                                                           | -          | 4t <sub>CLK_COMP</sub>                             | -   | ns   | 4t <sub>CLK_COMP</sub> ≥ 100 ns                |
|                   |                                     |                                                                                          |            | 100                                                |     |      | 4t <sub>CLK_COMP</sub> < 100 ns                |

\*1: n = 0: unit.0 to unit.5, unit.12 to unit.31, n = 1: unit.6 to unit.11

\*2: n = 0: unit.0 to unit.2, n = 1: unit.8 to unit.10

\*3: n = 0: ch.0 to ch.4, n = 1: ch.8 to ch.10

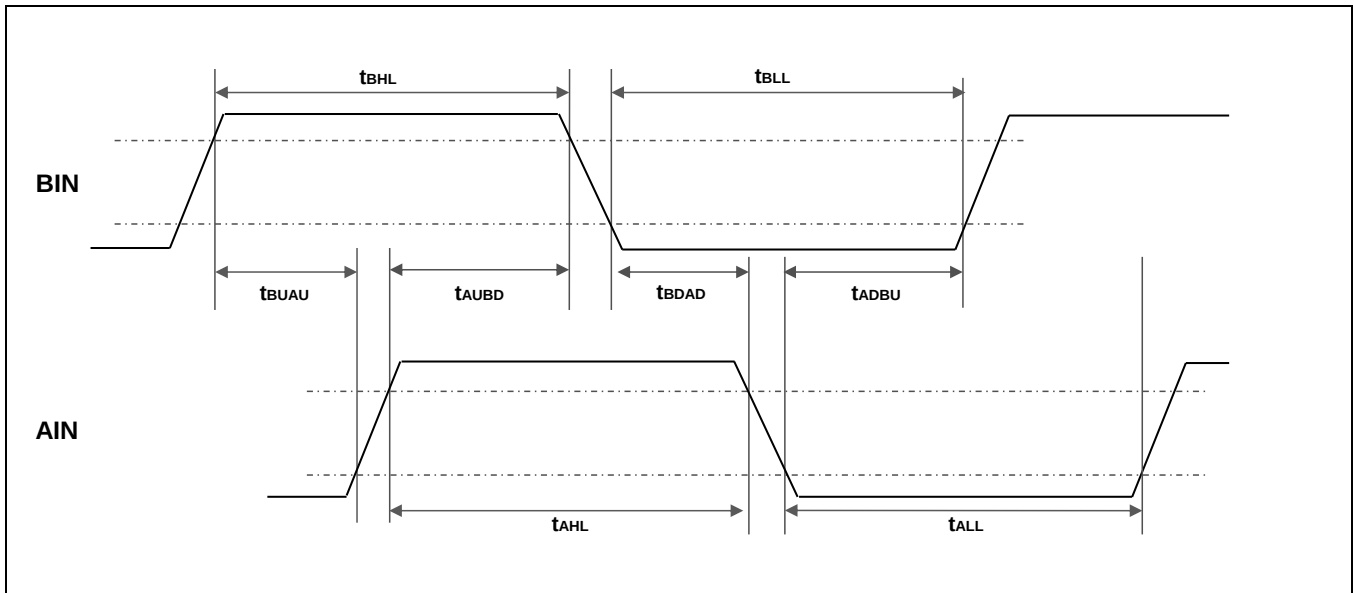
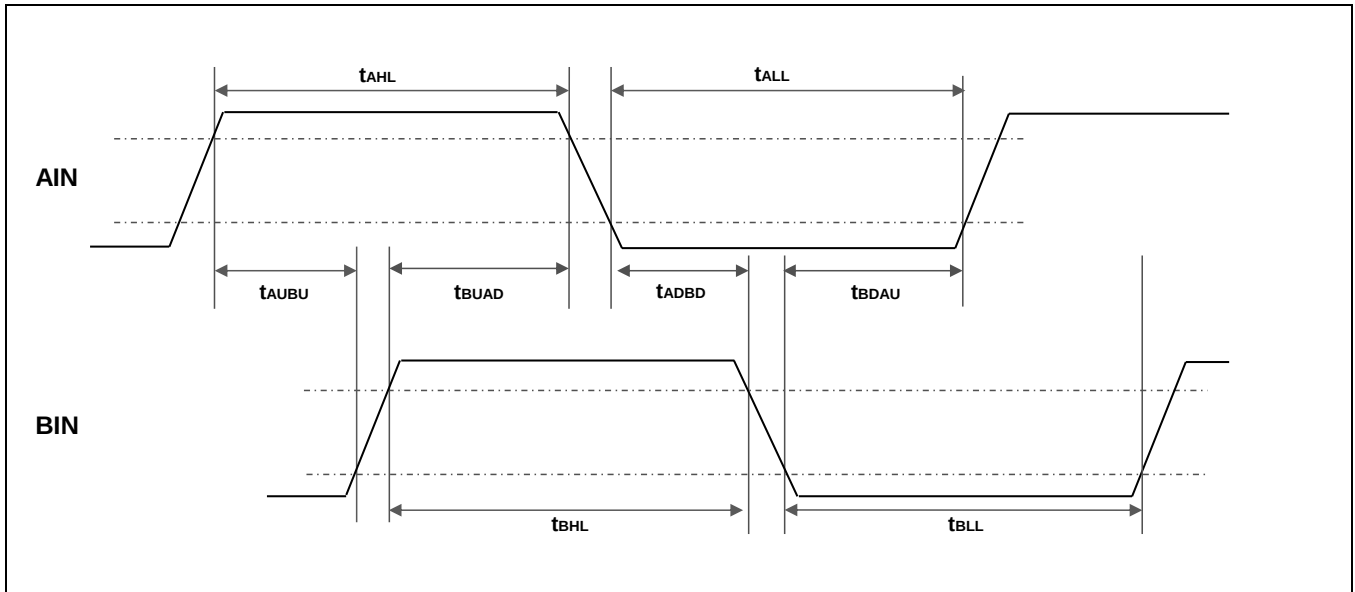
\*4: n = 0: ch.0 to ch.1, n = 1: ch.16 to ch.17

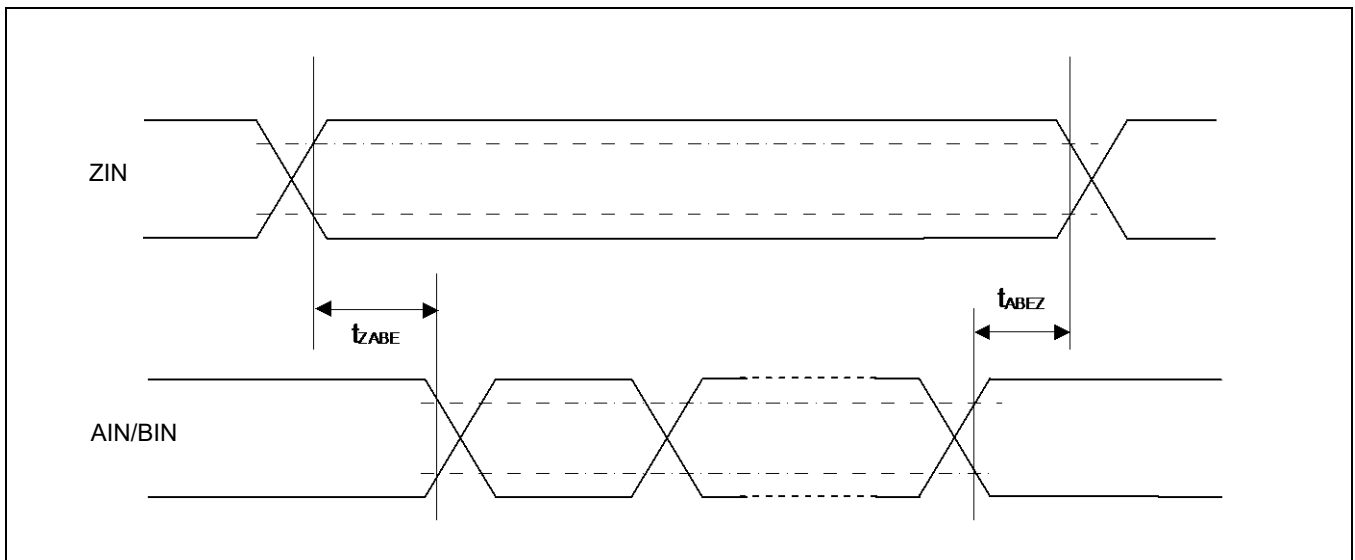
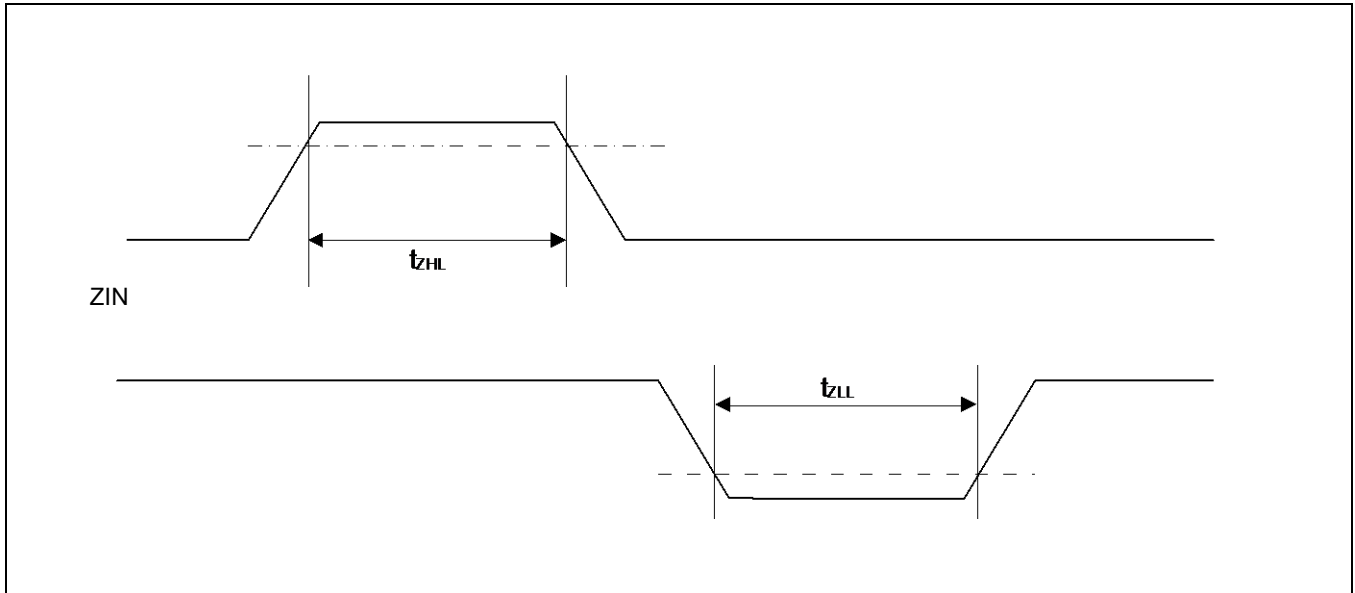


#### 9.1.4.8 QPRC timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC5</sub> = DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC53</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = 0.0 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V)

| Parameter                                                    | Symbol            | Pin Name                                 | Conditions           | Value                   |     | Unit | Remarks                             |
|--------------------------------------------------------------|-------------------|------------------------------------------|----------------------|-------------------------|-----|------|-------------------------------------|
|                                                              |                   |                                          |                      | Min                     | Max |      |                                     |
| AIN pin "H" width                                            | t <sub>AHL</sub>  | AIN8 to AIN9                             | -                    | 4t <sub>CLK_LCP1A</sub> | -   | ns   | 4t <sub>CLK_LCP1A</sub><br>≥ 100 ns |
| AIN pin "L" width                                            | t <sub>ALL</sub>  | AIN8 to AIN9                             | -                    |                         |     |      |                                     |
| BIN pin "H" width                                            | t <sub>BHL</sub>  | BIN8 to BIN9                             | -                    |                         |     |      |                                     |
| BIN pin "L" width                                            | t <sub>BLL</sub>  | BIN8 to BIN9                             | -                    |                         |     |      |                                     |
| Time from AIN pin "H" level to BIN rise                      | t <sub>AUBU</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from BIN pin "H" level to AIN fall                      | t <sub>BUAD</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from AIN pin "L" level to BIN fall                      | t <sub>ADBD</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from BIN pin "L" level to AIN rise                      | t <sub>BDAU</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from BIN pin "H" level to AIN rise                      | t <sub>BUAU</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from AIN pin "H" level to BIN fall                      | t <sub>AUBD</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from BIN pin "L" level to AIN fall                      | t <sub>BDAD</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| Time from AIN pin "L" level to BIN rise                      | t <sub>ADBU</sub> | AIN8 to AIN9, BIN8 to BIN9               | PC_Mode2 or PC_Mode3 |                         |     |      |                                     |
| ZIN pin "H" width                                            | t <sub>ZHL</sub>  | ZIN8 to ZIN9                             | QCR:CGSC = "0"       |                         |     |      |                                     |
| ZIN pin "L" width                                            | t <sub>ZLL</sub>  | ZIN8 to ZIN9                             | QCR:CGSC = "0"       |                         |     |      |                                     |
| Time from determined ZIN level to AIN/BIN rise and fall      | t <sub>ZABE</sub> | AIN8 to AIN9, BIN8 to BIN9, ZIN8 to ZIN9 | QCR:CGSC = "1"       |                         |     |      |                                     |
| Time from AIN/BIN rise and fall time to determined ZIN level | t <sub>ABEZ</sub> | AIN8 to AIN9, BIN8 to BIN9, ZIN8 to ZIN9 | QCR:CGSC = "1"       |                         |     |      |                                     |

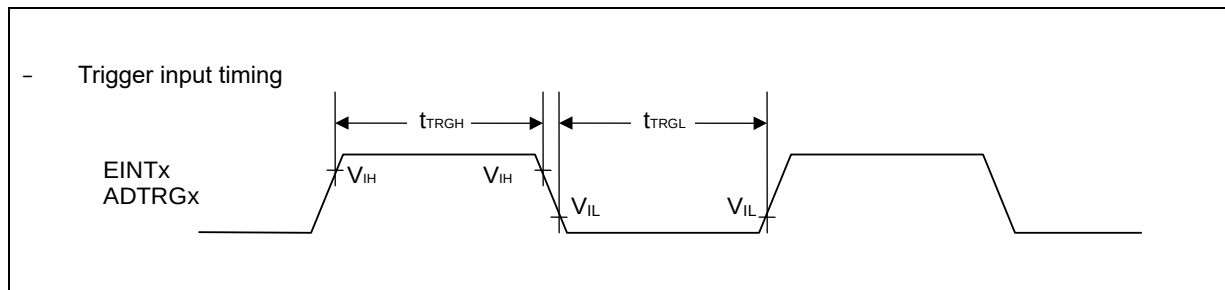




#### 9.1.4.9 Trigger Input

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC5</sub> = DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC53</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = 0.0 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V)

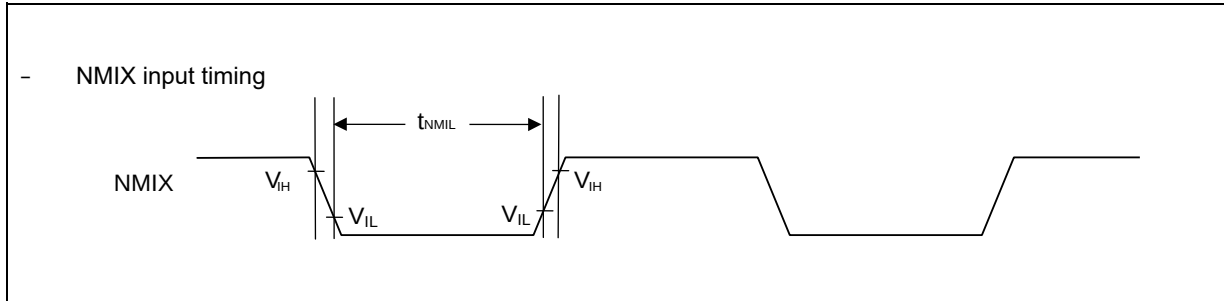
| Parameter         | Symbol                                   | Pin Name         | Conditions | Value                   |     | Unit | Remarks                          |
|-------------------|------------------------------------------|------------------|------------|-------------------------|-----|------|----------------------------------|
|                   |                                          |                  |            | Min                     | Max |      |                                  |
| Input pulse width | t <sub>TRGH</sub> ,<br>t <sub>TRGL</sub> | EINT0 to EINT23  | -          | 100                     | -   | ns   |                                  |
|                   |                                          | ADTRG0 to ADTRG1 | -          | 5t <sub>CLK LCP1A</sub> | -   | ns   | 5t <sub>CLK LCP1A</sub> ≥ 100 ns |
|                   |                                          | ADTRG1           | -          | 100                     | -   | ns   | 5t <sub>CLK LCP1A</sub> < 100 ns |
|                   |                                          | EINT0 to EINT23  | -          | 1                       | -   | μs   | Stop mode                        |



#### 9.1.4.10 NMI Input

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ± 10 %, V<sub>SS</sub> = 0.0 V)

| Parameter         | Symbol            | Pin Name | Conditions | Value |     | Unit | Remarks |
|-------------------|-------------------|----------|------------|-------|-----|------|---------|
|                   |                   |          |            | Min   | Max |      |         |
| Input pulse width | t <sub>NMIL</sub> | NMIX     | -          | 300   | -   | ns   |         |





#### 9.1.4.11 Low Voltage Detection (External Voltage)

Low-voltage detection (external low-voltage detection)

(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                           | Symbol            | Pin Name | Conditions                  | Value              |                   |                    | Unit | Remarks                                                                            |
|-------------------------------------|-------------------|----------|-----------------------------|--------------------|-------------------|--------------------|------|------------------------------------------------------------------------------------|
|                                     |                   |          |                             | Min                | Typ               | Max                |      |                                                                                    |
| Supply voltage range                | V <sub>DP5</sub>  | VCC5     | -                           | 3.5 <sup>*3</sup>  | -                 | 5.5 <sup>*3</sup>  | V    |                                                                                    |
|                                     |                   |          |                             | 2.7 <sup>*4</sup>  | -                 | 3.6 <sup>*4</sup>  |      |                                                                                    |
|                                     | V <sub>DP3</sub>  | VCC3     | -                           | 2.7                | -                 | 3.6                | V    |                                                                                    |
| Detection voltage (before trimming) | V <sub>DLBT</sub> | VCC5     | <sup>*1</sup>               | 3.6 <sup>*3</sup>  | 4.0 <sup>*3</sup> | 4.4 <sup>*3</sup>  | V    | When power-supply voltage falls and detection level is set initially               |
|                                     |                   |          | <sup>*1</sup> <sup>*5</sup> | 2.3 <sup>*4</sup>  | 2.6 <sup>*4</sup> | 2.9 <sup>*4</sup>  |      |                                                                                    |
|                                     |                   | VCC3     | <sup>*1</sup> <sup>*5</sup> | 2.3                | 2.6               | 2.9                | V    |                                                                                    |
| Detection voltage (after trimming)  | V <sub>DLAT</sub> | VCC5     | <sup>*1</sup>               | 3.86 <sup>*3</sup> | 4.0 <sup>*3</sup> | 4.14 <sup>*3</sup> | V    | When power-supply voltage falls and detection level is set initially<br>Typ ±3.5 % |
|                                     |                   |          | <sup>*1</sup> <sup>*5</sup> | 2.51 <sup>*4</sup> | 2.6 <sup>*4</sup> | 2.69 <sup>*4</sup> |      |                                                                                    |
|                                     |                   | VCC3     | <sup>*1</sup> <sup>*5</sup> | 2.51               | 2.6               | 2.69               | V    |                                                                                    |
| Hysteresis width                    | V <sub>HYS</sub>  | VCC5     | -                           | -                  | 100               | -                  | mV   | When power-supply voltage rises                                                    |
| Low-voltage detection time          | T <sub>d</sub>    | -        | -                           | -                  | -                 | 40                 | μs   |                                                                                    |
| Power supply voltage regulation     | -                 | VCC5     | -                           | -2                 | -                 | 2                  | V/ms | <sup>*2</sup>                                                                      |

<sup>\*1</sup>: If the fluctuation of the power supply is faster than the low-voltage detection time, there is a possibility to generate or release after the power supply voltage has exceeded the detection voltage range.

<sup>\*2</sup>: Please suppress the change of the power supply within the range of the power-supply voltage regulation to do a low-voltage detection by detecting voltage (VDL)

<sup>\*3</sup>: For S6J33xxxSx or S6J33xxxUx or S6J33xxxTx or S6J33xxxVx option.

<sup>\*4</sup>: For S6J33xxxAx or S6J33xxxBx or S6J33xxxCx or S6J33xxxDx or S6J33xxxEx or S6J33xxxFx or S6J33xxxGx or S6J33xxxHx option.

<sup>\*5</sup>: These LVD settings cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage (2.7 V).

#### Notes:

- The detection/release threshold values of following LVD channels are potentially below supply range defined in 9.1.2 [Recommended Operating Condition](#).  
LVDH1 (VCC5)  
LVDH2 (VCC3)
- Please use these LVD channels with your own risk.
- Please monitor the external power supplies on the PCB if needed.
- For S6J33xxxSC or S6J33xxxUC or S6J33xxxTC or S6J33xxxVC options:  
Depending on the threshold setting, LVDH1 can always detect VCC5 low voltage before the supply drops below the level defined in 9.1.2 [Recommended Operating Condition](#). Please refer to S6J3300 series Hardware Manual for available list of LVDH1 threshold settings.

Low-voltage detection (1.15 V power supply low-voltage detection)

(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                            | Symbol             | Pin Name | Conditions | Value  |        |        | Unit | Remarks                                       |
|--------------------------------------|--------------------|----------|------------|--------|--------|--------|------|-----------------------------------------------|
|                                      |                    |          |            | Min    | Typ    | Max    |      |                                               |
| Supply voltage range                 | V <sub>RDP12</sub> | VCC12    | -          | 1.09   | -      | 1.21   | V    |                                               |
| Detection voltage (before trimming)* | V <sub>RDLBT</sub> | VCC12    | *1 *2      | 0.7125 | 0.8125 | 0.9125 | V    | When power-supply voltage falls               |
| Detection voltage (after trimming)   | V <sub>RDLAT</sub> | VCC12    | *1 *2      | 0.7841 | 0.8125 | 0.8410 | V    | When power-supply voltage falls<br>Typ ±3.5 % |
| Hysteresis width                     | V <sub>RHYS</sub>  | -        | -          | -      | 75     | -      | mV   | When power-supply voltage rises               |
| Low-voltage detection time           | TR <sub>d</sub>    | -        | -          | -      | -      | 30     | μs   |                                               |

\*1: If the power fluctuation time is less than the low-voltage detection time (TR<sub>d</sub>) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.

\*2: These LVD settings cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage (1.09 V).

**Notes:**

- The detection/release threshold values of LVDL2 channel is potentially below supply range defined in [9.1.2 Recommended Operating Condition](#).
- Please use this LVDL2 channel with your own risk.
- Please monitor the external power supplies on the PCB if needed.

#### 9.1.4.12 Low Voltage Detection (Internal Voltage)

Low-voltage detection (internal low-voltage detection for LVDL0)

(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                  | Symbol            | Pin Name | Conditions | Value |      |      | Unit | Remarks                         |
|----------------------------|-------------------|----------|------------|-------|------|------|------|---------------------------------|
|                            |                   |          |            | Min   | Typ  | Max  |      |                                 |
| Supply voltage range       | V <sub>RDP5</sub> | -        | -          | 1.05  | -    | 1.21 | V    |                                 |
| Detection voltage          | V <sub>RDL</sub>  | -        | *1 *2      | 0.75  | 0.85 | 0.95 | V    | When power-supply voltage falls |
| Hysteresis width           | V <sub>RHYS</sub> | -        | -          | -     | 75   | -    | mV   | When power-supply voltage rises |
| Low-voltage detection time | TR <sub>d</sub>   | -        | -          | -     | -    | 30   | μs   | *3                              |

\*1: If the power fluctuation time is less than the low-voltage detection time (TR<sub>d</sub>) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.

\*2: This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage (1.05 V).

\*3: After the brown-out event where the voltage level dips below the detection threshold for less than this time, the detection may occur or be canceled.

#### Notes:

- The detection/release threshold values of LVDL0 channel is potentially below supply range defined in [9.1.2 Recommended Operating Condition](#).

Low-voltage detection (internal low-voltage detection for LVDL1)

(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                           | Symbol             | Pin Name | Conditions | Value |       |       | Unit | Remarks                                       |
|-------------------------------------|--------------------|----------|------------|-------|-------|-------|------|-----------------------------------------------|
|                                     |                    |          |            | Min   | Typ   | Max   |      |                                               |
| Supply voltage range                | V <sub>RDP5</sub>  | -        | -          | 1.05  | -     | 1.21  | V    |                                               |
| Detection voltage (before trimming) | V <sub>RDLBT</sub> | -        | *1 *2      | 0.775 | 0.875 | 0.975 | V    | When power-supply voltage falls               |
| Detection voltage (after trimming)  | V <sub>RDLAT</sub> | -        | *1 *2      | 0.844 | 0.875 | 0.906 | V    | When power-supply voltage falls<br>Typ ±3.5 % |
| Hysteresis width                    | V <sub>RHYS</sub>  | -        | -          | -     | 75    | -     | mV   | When power-supply voltage rises               |
| Low-voltage detection time          | TR <sub>d</sub>    | -        | -          | -     | -     | 30    | μs   | *3                                            |

\*1: If the power fluctuation time is less than the low-voltage detection time (TR<sub>d</sub>) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.

\*2: This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage (1.05 V).

\*3: After the brown-out event where the voltage level dips below the detection threshold for less than this time, the detection may occur or be canceled.

#### Notes:

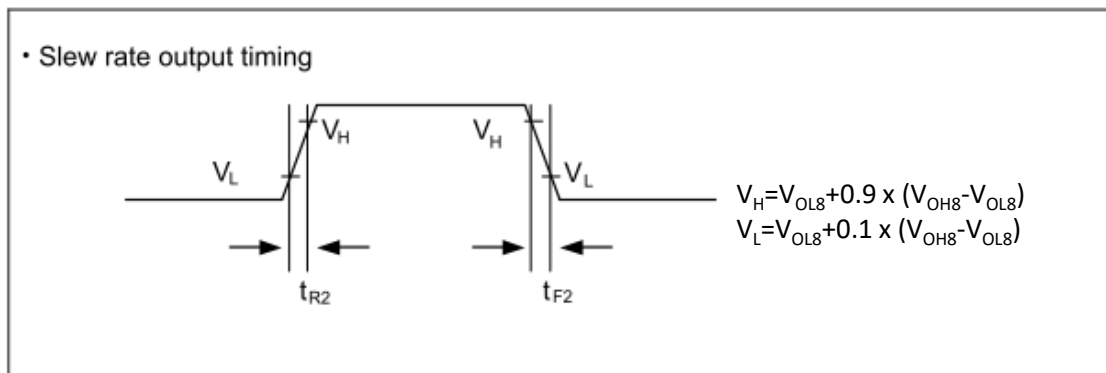
- The detection/release threshold values of LVDL1 channel is potentially below supply range defined in [9.1.2 Recommended Operating Condition](#).

#### 9.1.4.13 High Current Output Slew Rate

(T<sub>A</sub>: Recommended operating conditions,

V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC</sub> = 5.0 V ± 10 %, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter               | Symbol                            | Pin Name                       | Conditions | Value |     |     | Unit | Remarks                |
|-------------------------|-----------------------------------|--------------------------------|------------|-------|-----|-----|------|------------------------|
|                         |                                   |                                |            | Min   | Typ | Max |      |                        |
| Output rise / fall time | t <sub>R2</sub> , t <sub>F2</sub> | P1_17 to P1_31, P2_00 to P2_08 | -          | 15    | -   | 100 | ns   | Load capacitance 85 pF |



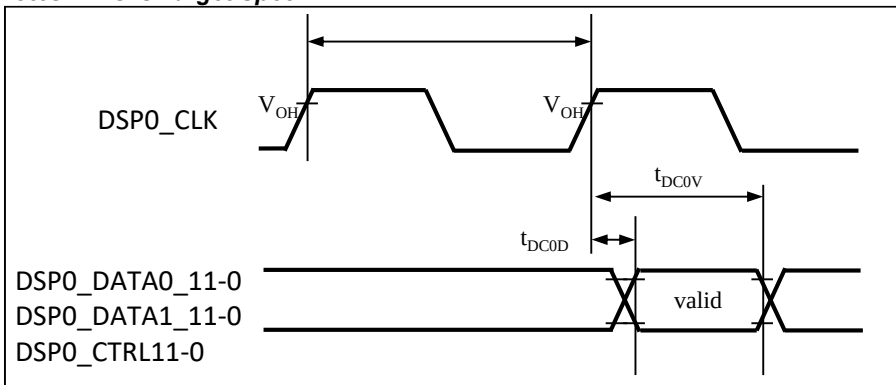
#### 9.1.4.14 Display Controller

##### (1) Display Controller0 Timing (TTL Mode)

(TA: Recommended operating conditions, Vcc53 = 5.0 V ± 10 %, 3.3 V ± 0.3 V, Vss = DVss = AVss = 0.0 V)

| Parameter                      | Symbol              | Pin Name                                                                   | Conditions                                                             | Value |     | Unit | Remarks                                |
|--------------------------------|---------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------|-------|-----|------|----------------------------------------|
|                                |                     |                                                                            |                                                                        | Min   | Max |      |                                        |
| Clock Cycle                    | t <sub>DC0CYC</sub> | DSP0_CLK                                                                   | (CL = 20 pF,<br>I <sub>OL</sub> = -15 mA,<br>I <sub>OH</sub> = 15 mA), | 25    | -   | ns   |                                        |
| Output delay from<br>DSP0_CLK↑ | t <sub>DC0D</sub>   | DSP0_R7-0<br>DSP0_G7-0<br>DSP0_B7-0<br>DSP0_EN<br>DSP0_HSYNC<br>DSP0_VSYNC | (CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA)    | -     | 3.2 | ns   |                                        |
| Output data valid<br>time      | t <sub>DC0V</sub>   | DSP0_R7-0<br>DSP0_G7-0<br>DSP0_B7-0<br>DSP0_EN<br>DSP0_HSYNC<br>DSP0_VSYNC |                                                                        | 21.8  | -   | ns   | t <sub>DC0CYC</sub> - 3.3<br>ns+0.1 ns |

**Notes: This is Target Spec.**



#### 9.1.4.15 External Bus Interface Timing

##### Clock Output Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC53</sub> = 5.0 V ± 10 %, V<sub>SS</sub> = 0.0 V)

(External load capacitance 16 pF)

| Parameter           | Symbol            | Pin Name | Conditions                                         | Value                               |                                     | Unit | Remarks |
|---------------------|-------------------|----------|----------------------------------------------------|-------------------------------------|-------------------------------------|------|---------|
|                     |                   |          |                                                    | Min                                 | Max                                 |      |         |
| Cycle time          | t <sub>CYC</sub>  | MCLK     | 2 mA is selected in ODR bit in PPC_PCFGR register. | 62.5                                | -                                   | ns   |         |
| Clock high width *1 | t <sub>CHCL</sub> | MCLK     |                                                    | d <sub>H</sub> t <sub>CYC</sub> - 7 | d <sub>H</sub> t <sub>CYC</sub> + 7 | ns   |         |
| Clock low width *2  | t <sub>CLCH</sub> | MCLK     |                                                    | d <sub>L</sub> t <sub>CYC</sub> - 7 | d <sub>L</sub> t <sub>CYC</sub> + 7 | ns   |         |

\*1: If division-ratio is even value, d<sub>H</sub> is equivalent to 0.5.

Otherwise, d<sub>H</sub> is calculated as the following.

d<sub>H</sub> = The number rounding "division-ratio x 0.5" down to the nearest integer / division-ratio

division-ratio is multiplication value among SYSDIV bit, HPMDIV bit and EXTBUSDIV bit setting.

ex). Setting SYSDIV to 1-division, HPMDIV to 7-division, EXTBUSDIV to 1-division, d<sub>H</sub> is calculated as 0.429.

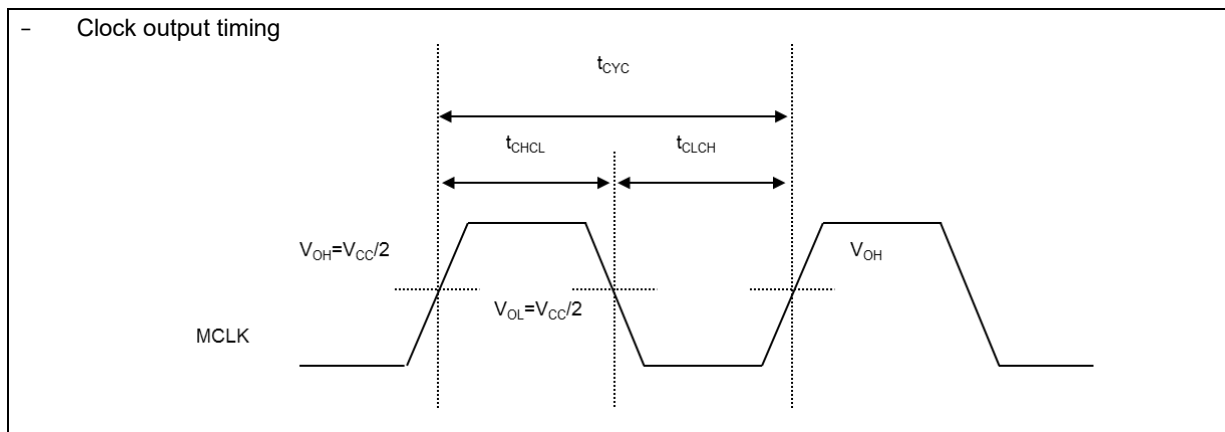
\*2: If division-ratio is even value, d<sub>L</sub> is equivalent to 0.5.

Otherwise, d<sub>L</sub> is calculated as the following.

d<sub>L</sub> = The number rounding "division-ratio x 0.5" up to the nearest integer / division-ratio

division-ratio is multiplication value among SYSDIV bit, HPMDIV bit and EXTBUSDIV bit setting.

ex). Setting SYSDIV to 1-division, HPMDIV to 7-division, EXTBUSDIV to 1-division, d<sub>L</sub> is calculated as 0.571.

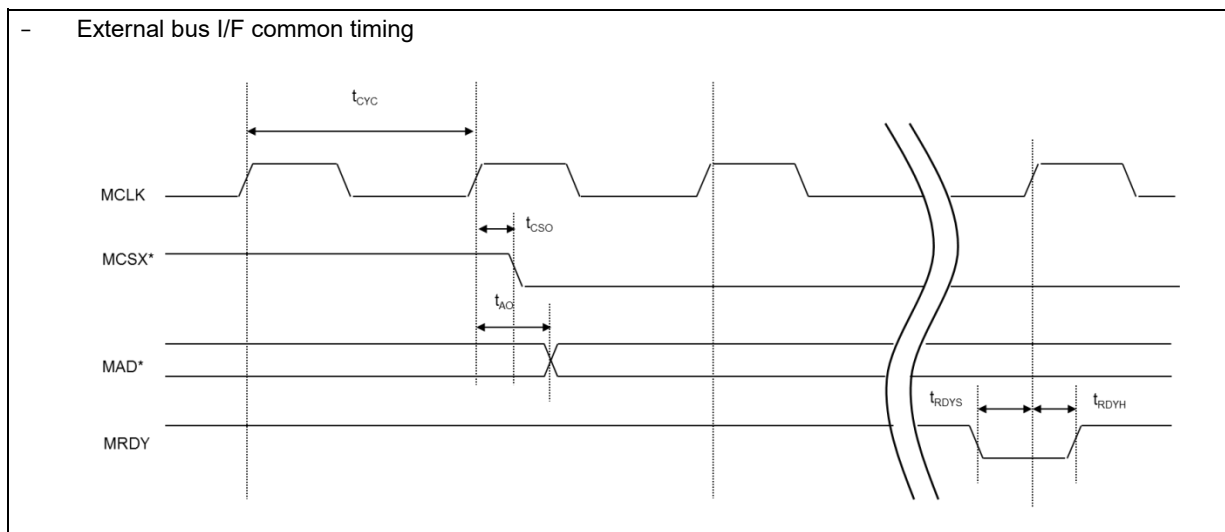


## Common Timing between Read and Write

(TA: Recommended operating conditions, Vcc53 = 5.0 V ± 10 %, Vss = 0.0 V)

(External load capacitance 16 pF)

| Parameter                 | Symbol            | Pin Name             | Conditions                                                                          | Value |     | Unit | Remarks                                    |
|---------------------------|-------------------|----------------------|-------------------------------------------------------------------------------------|-------|-----|------|--------------------------------------------|
|                           |                   |                      |                                                                                     | Min   | Max |      |                                            |
| Cycle time (without MRDY) | t <sub>CYC</sub>  | MCLK                 | 2 mA is selected in ODR bit in PPC_PCFGR register.                                  | 62.5  | -   | ns   |                                            |
| Cycle time (with MRDY)    | t <sub>CYC</sub>  | MCLK                 |                                                                                     | 62.5  | -   | ns   | If using MRDY, set MCLK to 20 MHz or less. |
| CS delay time             | t <sub>CSO</sub>  | MCLK, MCSX0 to MCSX3 |                                                                                     | 0.5   | 18  | ns   |                                            |
| Address delay time        | t <sub>AO</sub>   | MCLK, MAD00 to MAD23 |                                                                                     | 0.5   | 18  | ns   |                                            |
| RDY setup time            | t <sub>RDYS</sub> | MCLK, MRDY           | "CMOS Schmitt input" and "Disable noise filter" are selected in PPC_PCFGR register. | 21    | -   | ns   |                                            |
| RDY hold time             | t <sub>RDYH</sub> | MCLK, MRDY           |                                                                                     | 0     | -   | ns   |                                            |

**Notes: This is Target Spec.**


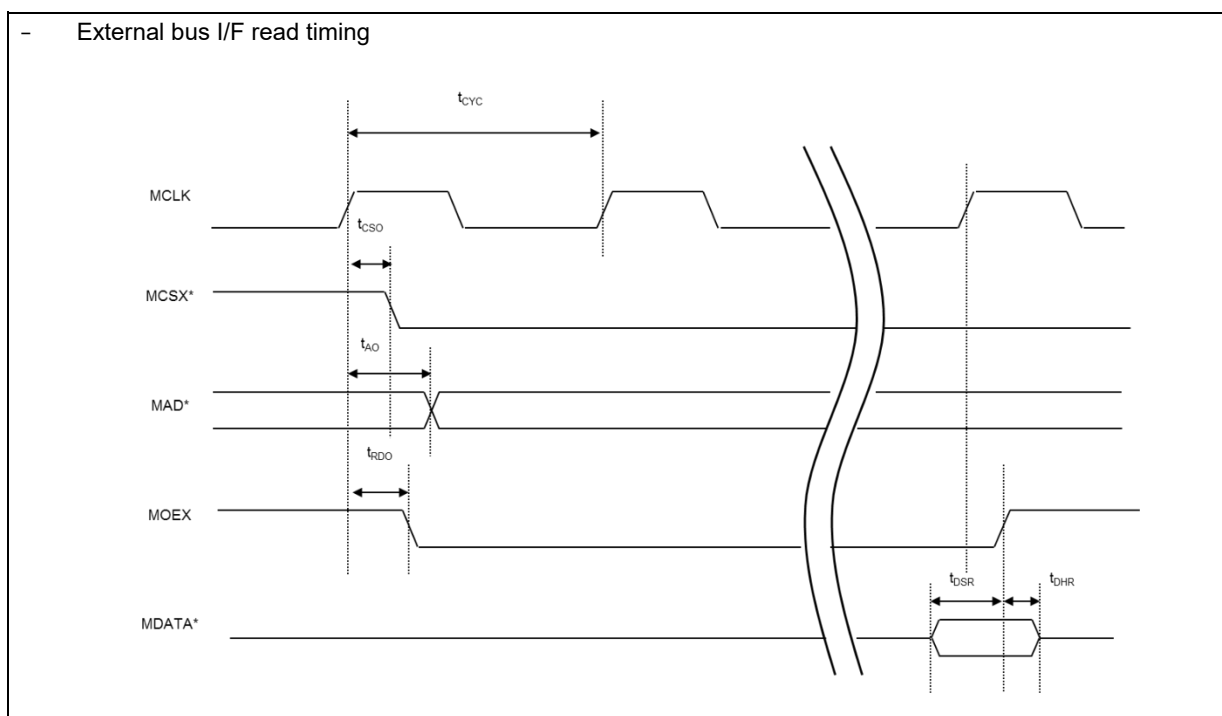
## Read Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC53</sub> = 5.0 V ± 10 %, V<sub>SS</sub> = 0.0 V)

(External load capacitance 16 pF)

| Parameter       | Symbol           | Pin Name                       | Conditions                                                                                         | Value                   |     | Unit | Remarks |
|-----------------|------------------|--------------------------------|----------------------------------------------------------------------------------------------------|-------------------------|-----|------|---------|
|                 |                  |                                |                                                                                                    | Min                     | Max |      |         |
| Data setup time | t <sub>DSR</sub> | MOEX,<br>MDATA00 to<br>MDATA15 | "CMOS Schmitt<br>input" and "Disable<br>noise filter" are<br>selected in<br>PPC_PCFGR<br>register. | 21+t <sub>cy</sub><br>c | -   | ns   |         |
| Data hold time  | t <sub>DHR</sub> | MOEX,<br>MDATA00 to<br>MDATA15 |                                                                                                    | 0                       | -   | ns   |         |
| MOEX delay time | t <sub>RDO</sub> | MCLK, MOEX                     | 2 mA is selected in<br>ODR bit in<br>PPC_PCFGR<br>register.                                        | 0.5                     | 18  | ns   |         |

**Notes: This is Target Spec.**





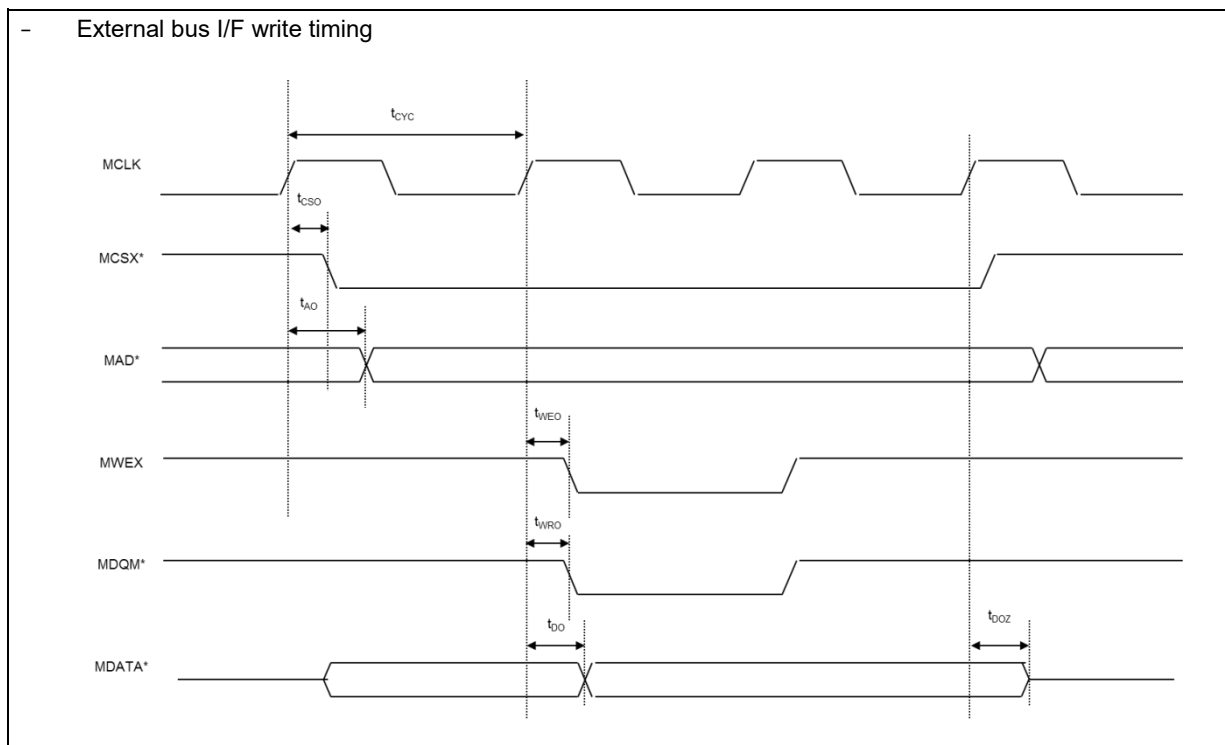
## Write Timing

(TA: Recommended operating conditions, Vcc53 = 5.0 V ± 10 %, Vss = 0.0 V)

(External load capacitance 16 pF)

| Parameter                     | Symbol           | Pin Name                 | Conditions                                         | Value |     | Unit | Remarks |
|-------------------------------|------------------|--------------------------|----------------------------------------------------|-------|-----|------|---------|
|                               |                  |                          |                                                    | Min   | Max |      |         |
| MWEX delay time               | t <sub>WEO</sub> | MCLK, MWEX               | 2 mA is selected in ODR bit in PPC_PCFGR register. | 0.5   | 18  | ns   |         |
| Byte mask delay time          | t <sub>WRO</sub> | MCLK, MDQM0 to MDQM1     |                                                    | 0.5   | 18  | ns   |         |
| Data delay time               | t <sub>DO</sub>  | MCLK, MDATA00 to MDATA15 |                                                    | 0.5   | 18  | ns   |         |
| Data delay time (Hi-Z output) | t <sub>DOZ</sub> | MCLK, MDATA00 to MDATA15 |                                                    | -     | 18  | ns   |         |

**Notes: This is Target Spec.**



## 9.1.4.16 DDR-HSSPI

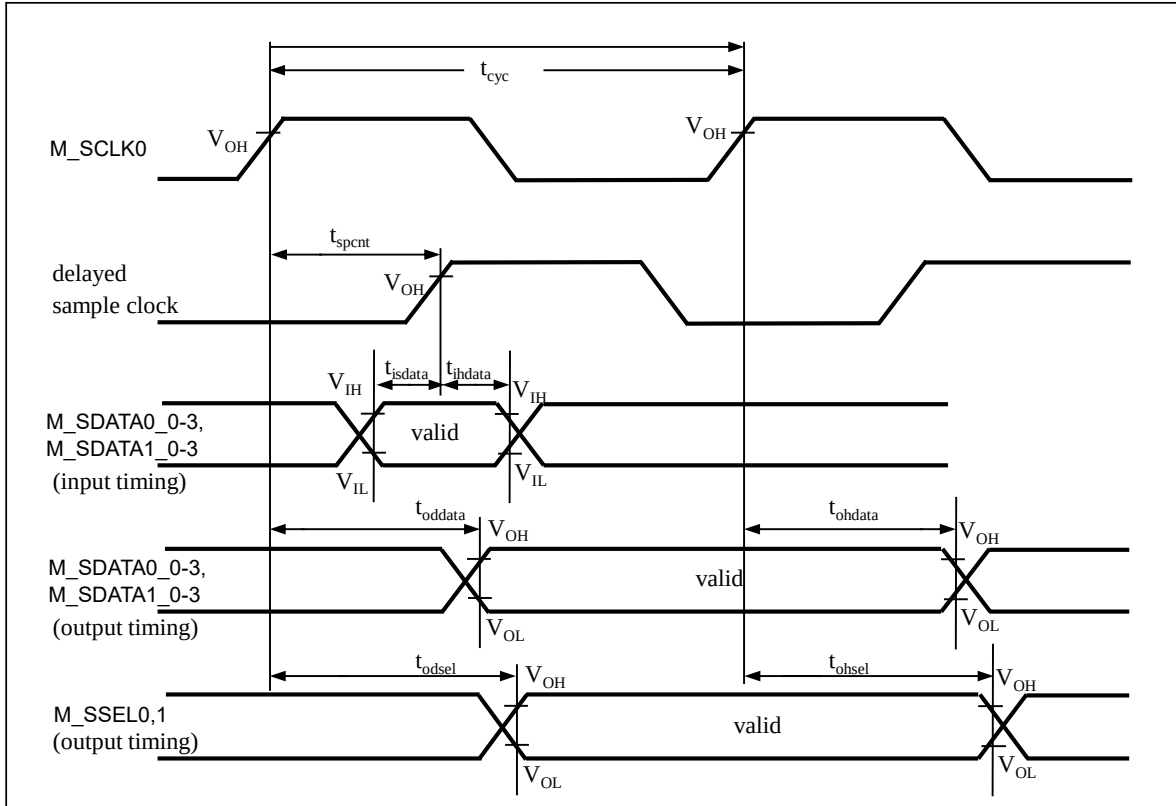
**(1) DDR-HSSPI Interface Timing (SDR Mode)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vss = DVss = AVss = 0.0 V)

| Parameter                               | Symbol              | Pin Name                     | Conditions                                                             | Value                                           |                         | Unit | Remarks                |
|-----------------------------------------|---------------------|------------------------------|------------------------------------------------------------------------|-------------------------------------------------|-------------------------|------|------------------------|
|                                         |                     |                              |                                                                        | Min                                             | Max                     |      |                        |
| HSSPI clock cycle                       | t <sub>cyc</sub>    | M_SCLK0                      | (CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA), | 10                                              | -                       | ns   |                        |
|                                         |                     |                              |                                                                        | 20                                              | -                       |      | when Quad Page Program |
| M_SCLK↑ -> delayed sample clock↑        | t <sub>spcnt</sub>  | -                            |                                                                        | 0                                               | 31.5                    | ns   |                        |
| M_SDATA -> M_SCLK↑<br>Input setup time  | t <sub>isdata</sub> | M_SDATA0_0-3<br>M_SDATA1_0-3 |                                                                        | *1                                              | -                       | ns   |                        |
| M_SCLK↑ -> M_SDATA<br>Input hold time   | t <sub>ihdata</sub> | M_SDATA0_0-3<br>M_SDATA1_0-3 |                                                                        | *1                                              | -                       | ns   |                        |
| M_SCLK↑ -> M_SDATA<br>Output delay time | t <sub>oddata</sub> | M_SDATA0_0-3<br>M_SDATA1_0-3 |                                                                        | -                                               | t <sub>cyc</sub> /2 + 2 | ns   |                        |
| M_SCLK↑ -> M_SDATA<br>Output hold time  | t <sub>ohdata</sub> | M_SDATA0_0-3<br>M_SDATA1_0-3 |                                                                        | t <sub>cyc</sub> /2 - 3                         | -                       | ns   |                        |
| M_SCLK↑ -> M_SSEL<br>Output delay time  | t <sub>odsel</sub>  | M_SSEL0, 1                   |                                                                        | -<br>12.00+(SS<br>2CD+0.5)*<br>t <sub>cyc</sub> | -                       | ns   |                        |
| M_SCLK↑ -> M_SSEL<br>Output hold time   | t <sub>ohsel</sub>  | M_SSEL0, 1                   |                                                                        | t <sub>cyc</sub> - 2                            | -                       | ns   |                        |

**Notes: This is Target Spec.**

- SS2CD [1:0] should be configured as 01, 10, or 11.
- For \*1, the delay of the delay sample clock can be configured (DLP function).



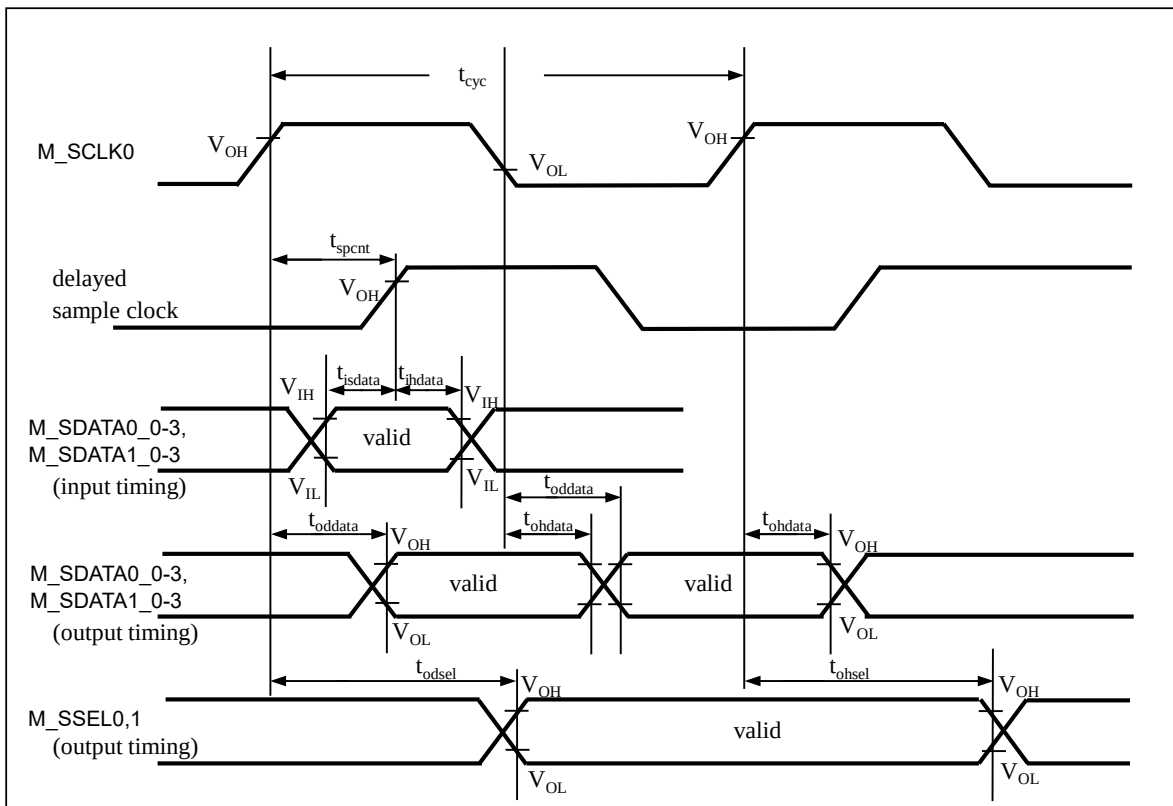
## (2) DDR-HSSPI Interface Timing (DDR Mode)

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vss = DVss = AVss = 0.0 V)

| Parameter                                 | Symbol       | Pin Name                   | Conditions                                     | Value                                        |                   | Unit | Remarks |
|-------------------------------------------|--------------|----------------------------|------------------------------------------------|----------------------------------------------|-------------------|------|---------|
|                                           |              |                            |                                                | Min                                          | Max               |      |         |
| HSSPI clock cycle                         | $t_{cyc}$    | M_SCLK0                    | (CL = 20 pF,<br>IOL = -10 mA,<br>IOH = 10 mA), | 12.5                                         | -                 | ns   |         |
| M_SCLK↑ -><br>delayed sample<br>clock↑    | $t_{spcnt}$  |                            |                                                | 0                                            | 31.5              | ns   |         |
| M_SDAT0 -><br>M_SCLK↑<br>Input setup time | $t_{isdata}$ | M_SDAT0_0-3<br>M_SDAT1_0-3 |                                                | *1                                           | -                 | ns   |         |
| M_SCLK↑ -><br>M_SDAT<br>Input hold time   | $t_{ihdata}$ | M_SDAT0_0-3<br>M_SDAT1_0-3 |                                                | *1                                           | -                 | ns   |         |
| M_SCLK↑ -><br>M_SDAT<br>Output delay time | $t_{oddata}$ | M_SDAT0_0-3<br>M_SDAT1_0-3 |                                                | -                                            | $t_{cyc}/4 + 1.5$ | ns   |         |
| M_SCLK↑ -><br>M_SDAT<br>Output hold time  | $t_{ohdata}$ | M_SDAT0_0-3<br>M_SDAT1_0-3 |                                                | $T_{cyc}/4 - 1.0$                            | -                 | ns   |         |
| M_SCLK↑ -><br>M_SSEL<br>Output delay time | $t_{odsel}$  | M_SSEL0, 1                 |                                                | -<br>$15.75 + (SS2C$<br>$D + 0.5) * t_{cyc}$ | -                 | ns   |         |
| M_SCLK↑ -><br>M_SSEL<br>Output hold time  | $t_{ohsel}$  | M_SSEL0, 1                 |                                                | $0.75 * t_{cyc} - 2.0$                       | -                 | ns   |         |

**Notes: This is Target Spec.**

- SS2CD [1:0] should be configured as 01, 10, or 11.
- For \*1, the delay of the delay sample clock can be configured (DLP function)



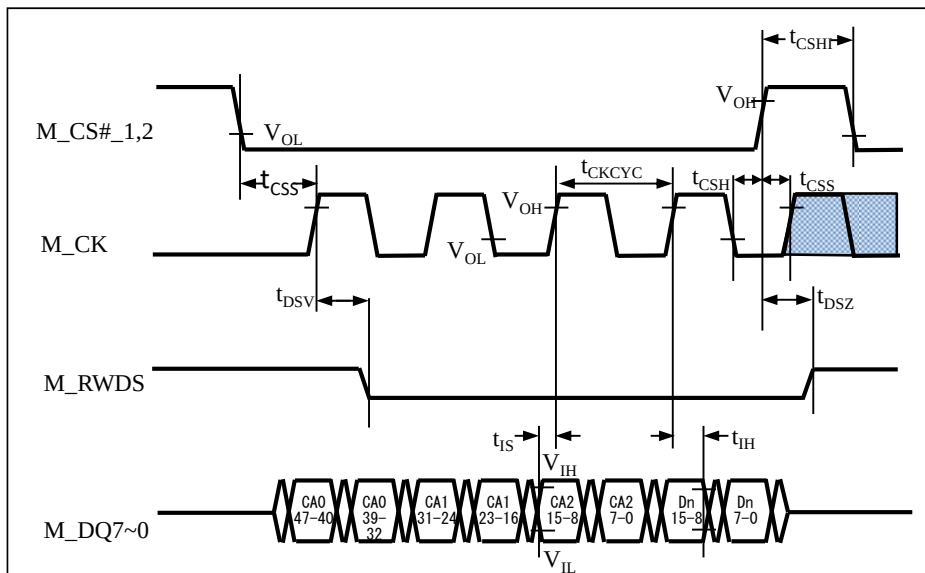
#### 9.1.4.17 Hyper BUS

##### (1) Hyper Bus Write Timing (HyperFlash)

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                             | Symbol             | Pin Name  | Conditions                                                                         | Value                    |     | Unit | Remarks |
|---------------------------------------|--------------------|-----------|------------------------------------------------------------------------------------|--------------------------|-----|------|---------|
|                                       |                    |           |                                                                                    | Min                      | Max |      |         |
| Hyper Bus clock cycle                 | t <sub>CKCYC</sub> | M_CK      | (C <sub>L</sub> = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA), | 10.0                     | -   | ns   |         |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>   | M_CS#_1,2 |                                                                                    | t <sub>CKCYC</sub> - 2.0 | -   | ns   |         |
| DQ -> CK↑↓<br>Input setup time        | t <sub>IS</sub>    | M_DQ7-0   |                                                                                    | 1.25                     | -   | ns   |         |
| CK↑↓ -> DQ<br>Input hold time         | t <sub>IH</sub>    | M_DQ7-0   |                                                                                    | 1.25                     | -   | ns   |         |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub>   | M_CS#_1,2 |                                                                                    | t <sub>CKCYC</sub> /2    | -   | ns   |         |

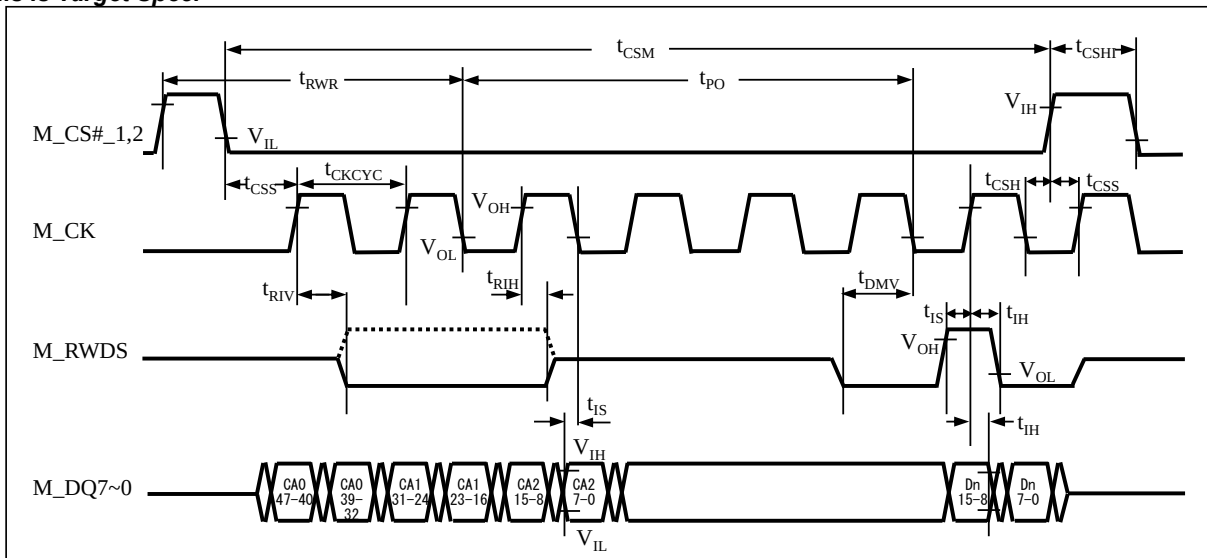
**Notes: This is Target Spec**



**(2) Hyper Bus Write Timing (HyperRAM)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vss = DVss = AVss = 0.0 V)

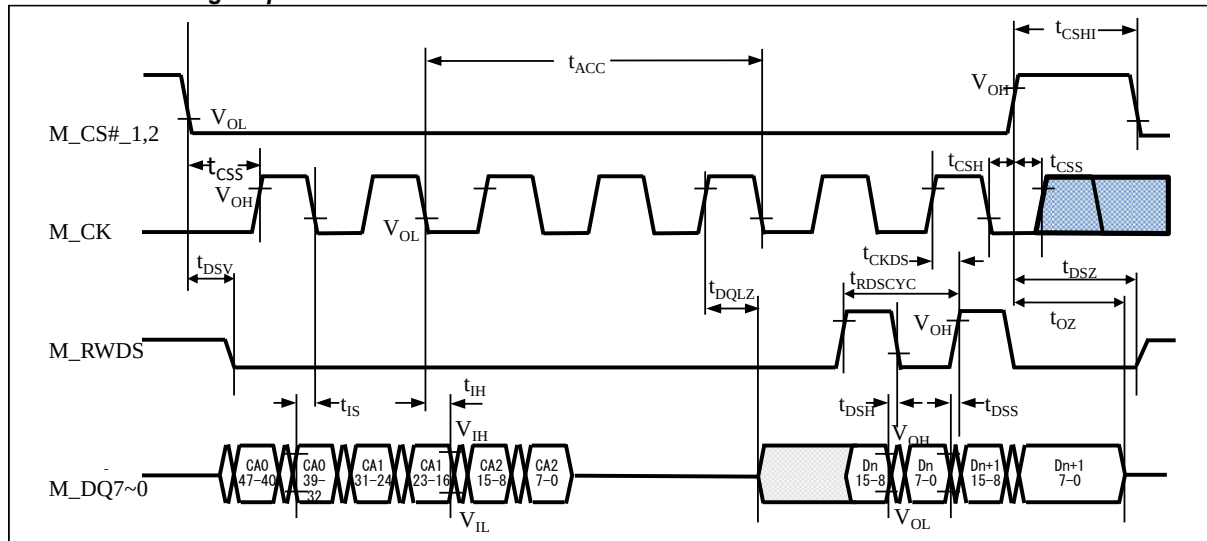
| Parameter                                    | Symbol             | Pin Name  | Conditions                                                             | Value                    |     | Unit | Remarks |
|----------------------------------------------|--------------------|-----------|------------------------------------------------------------------------|--------------------------|-----|------|---------|
|                                              |                    |           |                                                                        | Min                      | Max |      |         |
| Hyper Bus clock cycle                        | t <sub>CKCYC</sub> | M_CK      | (CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA), | 10.0                     | -   | ns   |         |
| CS↑↓ -> CK↑<br>Chip Select setup time        | t <sub>CSS</sub>   | M_CS#_1,2 |                                                                        | t <sub>CKCYC</sub> - 2.0 | -   | ns   |         |
| DQ -> CK↑↓<br>Input setup time               | t <sub>IS</sub>    | M_DQ7-0   |                                                                        | 1.25                     | -   | ns   |         |
| CK↑↓ -> DQ<br>Input hold time                | t <sub>IH</sub>    | M_DQ7-0   |                                                                        | 1.25                     | -   | ns   |         |
| CK↓ -> CS↑<br>Chip select hold time          | t <sub>CSH</sub>   | M_CS#_1,2 |                                                                        | t <sub>CKCYC</sub> /2    | -   | ns   |         |
| RWDS↓-> CK↓<br>Data Mask Valid               | t <sub>DMV</sub>   | M_RWDS    |                                                                        | 1                        | -   | ns   |         |
| CK↑ -> RWDS↑↓<br>Refresh Indicator Valid     | t <sub>RIV</sub>   | M_RWDS    |                                                                        | -                        | 6   | ns   |         |
| CK↑ -> RWDS (Hi-z)<br>Refresh Indicator Hold | t <sub>RIH</sub>   | M_RWDS    |                                                                        | 0                        | -   | ns   |         |

**Notes: This is Target Spec.**


**(3) Hyper Bus Read Timing (HyperFlash)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 3.3 V, Vss = DVss = AVss = 0.0 V)

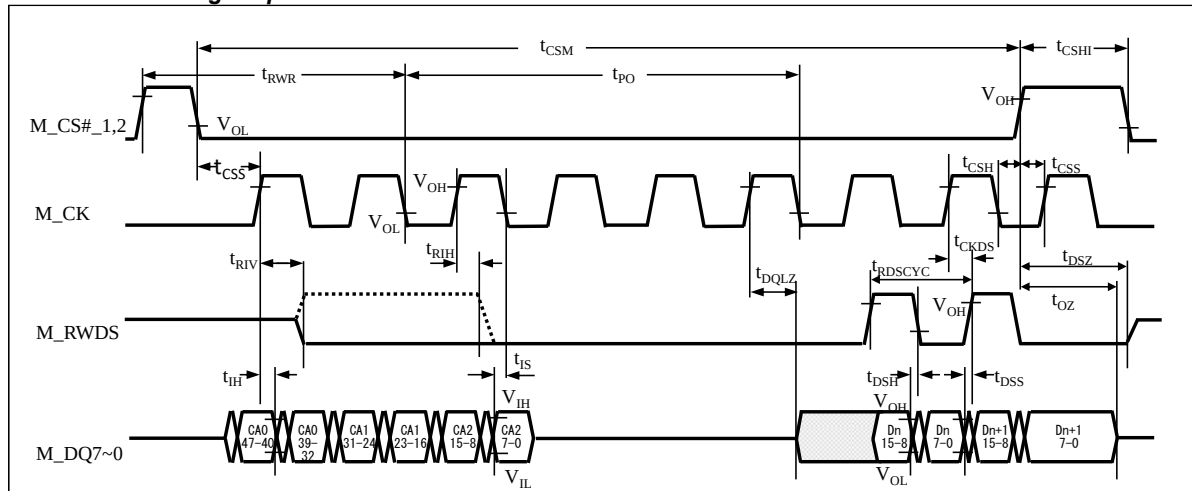
| Parameter                             | Symbol              | Pin Name  | Conditions                                                             | Value                     |     | Unit | Remarks |
|---------------------------------------|---------------------|-----------|------------------------------------------------------------------------|---------------------------|-----|------|---------|
|                                       |                     |           |                                                                        | Min                       | Max |      |         |
| Hyper Bus clock cycle                 | t <sub>RDSCYC</sub> | M_CK      | (CL = 20 pF,<br>I <sub>OL</sub> = -10 mA,<br>I <sub>OH</sub> = 10 mA), | 10.0                      | -   | ns   |         |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>    | M_CS#_1,2 |                                                                        | t <sub>RDSCYC</sub> - 2.0 | -   | ns   |         |
| DQ -> CK↑↓<br>Setup time              | t <sub>IS</sub>     | M_DQ7-0   |                                                                        | 1.25                      | -   | ns   |         |
| CK↑↓ -> DQ<br>Hold time               | t <sub>IH</sub>     | M_DQ7-0   |                                                                        | 1.25                      | -   | ns   |         |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub>    | M_CS#_1,2 |                                                                        | t <sub>RDSCYC</sub> / 2   | -   | ns   |         |
| RDS↑↓> DQ<br>Setup time               | t <sub>DSS</sub>    | M_DQ7-0   |                                                                        | -0.8                      | -   | ns   |         |
| RDS↑↓> DQ<br>Hold time                | t <sub>DSH</sub>    | M_DQ7-0   |                                                                        | -0.8                      | -   | ns   |         |

**Notes: This is Target Spec.**


**(4) Hyper Bus Read Timing (HyperRAM)**

(TA: Recommended operating conditions, Vcc3 = 3.3 V ± 0.3 V, Vss = DVss = AVss = 0.0 V)

| Parameter                                 | Symbol              | Pin Name  | Conditions                                                       | Value                    |     | Unit | Remarks |
|-------------------------------------------|---------------------|-----------|------------------------------------------------------------------|--------------------------|-----|------|---------|
|                                           |                     |           |                                                                  | Min                      | Max |      |         |
| Hyper Bus clock cycle                     | t <sub>RDSCYC</sub> | M_CK      | (CL = 20 pF, I <sub>OL</sub> = -10 mA, I <sub>OH</sub> = 10 mA), | 10.0                     | -   | ns   |         |
| CS↑↓ -> CK↑ Chip Select setup time        | t <sub>CSS</sub>    | M_CS#_1,2 |                                                                  | t <sub>RDSCYC</sub> -2.0 | -   | ns   |         |
| DQ -> CK↑↓ Setup time                     | t <sub>IS</sub>     | M_DQ7-0   |                                                                  | 1.25                     | -   | ns   |         |
| CK↑↓ -> DQ Hold time                      | t <sub>IH</sub>     | M_DQ7-0   |                                                                  | 1.25                     | -   | ns   |         |
| CK↓ -> CS↑ Chip select hold time          | t <sub>CSH</sub>    | M_CS#_1,2 |                                                                  | t <sub>RDSCYC</sub> / 2  | -   | ns   |         |
| RWDS↑↓> DQ (valid) Setup time             | t <sub>DSS</sub>    | M_DQ7-0   |                                                                  | -0.8                     | -   | ns   |         |
| RWDS↑↓> DQ (invalid) Hold time            | t <sub>DSH</sub>    | M_DQ7-0   |                                                                  | -0.8                     | -   | ns   |         |
| CK↑ -> RWDS↑↓ Refresh Indicator Valid     | t <sub>RIV</sub>    | M_RWDS    |                                                                  | -                        | 6   | ns   |         |
| CK↑ -> RWDS (Hi-z) Refresh Indicator Hold | t <sub>RIH</sub>    | M_RWDS    |                                                                  | 0                        | -   | ns   |         |

**Notes: This is Target Spec.**




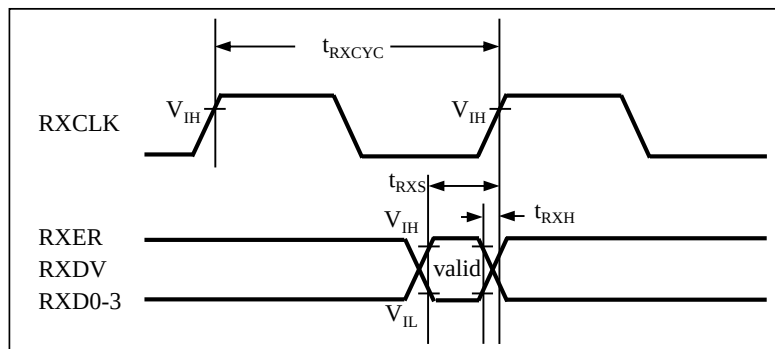
#### 9.1.4.18 Ethernet AVB

##### (1) Ethernet Receive Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC53</sub> = V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter     | Symbol             | Pin Name               | Conditions | Value |     | Unit | Remarks                   |
|---------------|--------------------|------------------------|------------|-------|-----|------|---------------------------|
|               |                    |                        |            | Min   | Max |      |                           |
| RXCLK cycle   | t <sub>RXCYC</sub> | RXCLK                  | -          | 40.0  | -   | ns   | -                         |
| RX setup time | t <sub>RXS</sub>   | RXER<br>RXDV<br>RXD0-3 |            | 10.0  | -   | ns   | t <sub>RXCYC</sub> -30 ns |
| RX hold time  | t <sub>RXH</sub>   | RXER<br>RXDV<br>RXD0-3 |            | 0     | -   | ns   | -                         |

**Notes: This is Target Spec.**

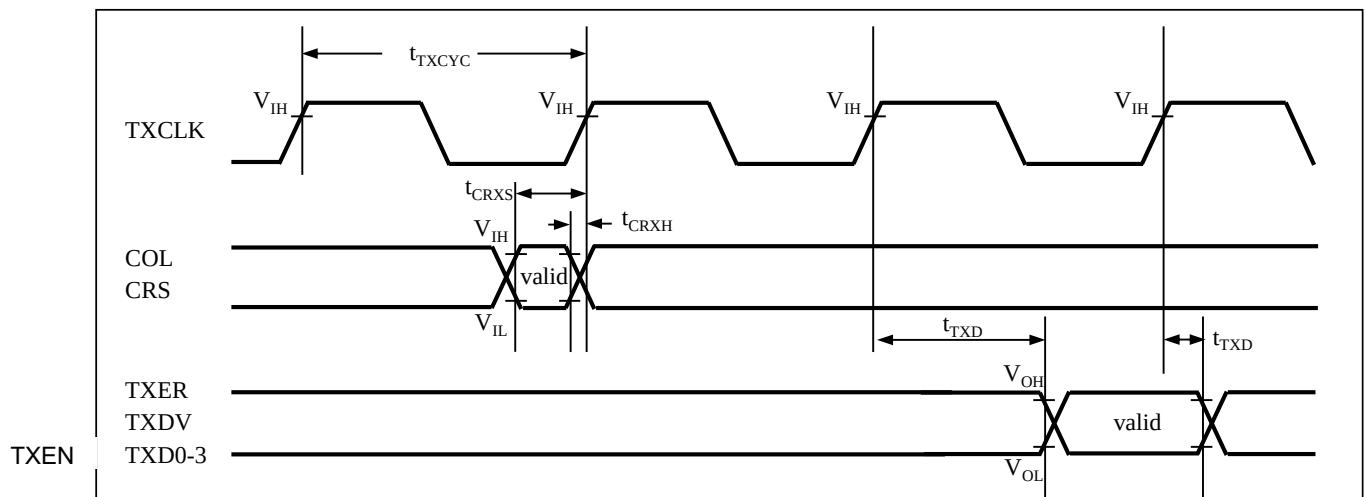


## (2) Ethernet Transmit Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                | Symbol             | Pin Name               | Conditions                                                           | Value |     | Unit | Remarks |
|--------------------------|--------------------|------------------------|----------------------------------------------------------------------|-------|-----|------|---------|
|                          |                    |                        |                                                                      | Min   | Max |      |         |
| TXCLK cycle              | t <sub>TXCYC</sub> | TXCLK                  | (CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA), | 40.0  | -   | ns   | -       |
| COL/CRS input setup time | t <sub>CRXS</sub>  | COL<br>CRS             |                                                                      | 12.0  | -   | ns   | -       |
| COL/CRS input hold time  | t <sub>CRXH</sub>  | COL<br>CRS             |                                                                      | 0.5   | -   | ns   | -       |
| Tx delay time            | t <sub>TXD</sub>   | TXER<br>TXEN<br>TXD0-3 |                                                                      | 0.5   | 25  | ns   | -       |

**Notes: This is Target Spec.**

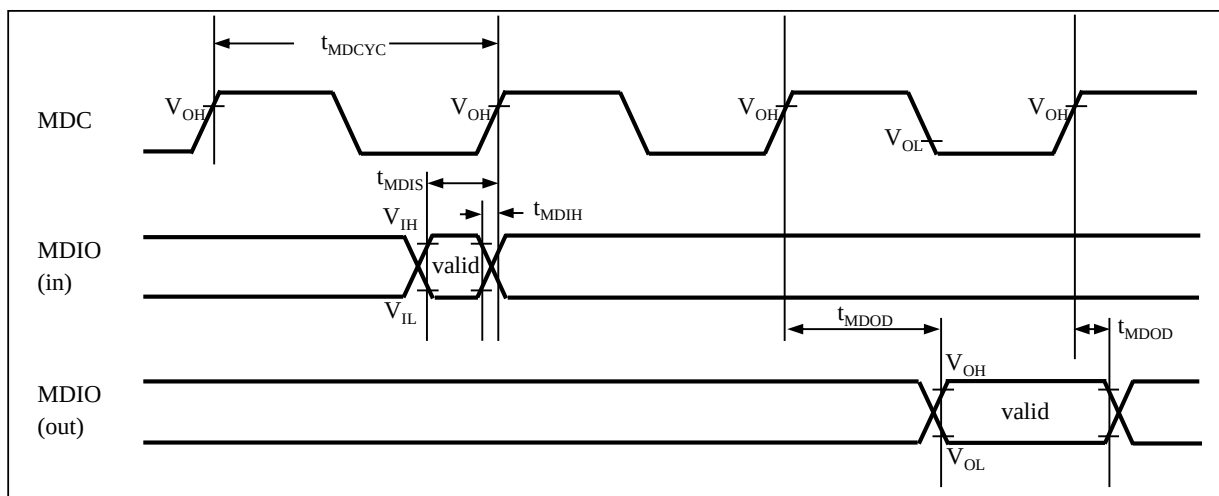


### (3) MDIO Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>cc3</sub> = V<sub>cc3</sub> = 3.3 V ± 0.3 V, V<sub>ss</sub> = DV<sub>ss</sub> = AV<sub>ss</sub> = 0.0 V)

| Parameter              | Symbol             | Pin Name | Conditions                                                           | Value |       | Unit | Remarks |
|------------------------|--------------------|----------|----------------------------------------------------------------------|-------|-------|------|---------|
|                        |                    |          |                                                                      | Min   | Max   |      |         |
| MDC cycle              | t <sub>MDCYC</sub> | MDC      | (CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA), | 400.0 | -     | ns   | -       |
| MDIO input setup time  | t <sub>MDIS</sub>  | MDIO     |                                                                      | 100.0 | -     | ns   |         |
| MDIO input hold time   | t <sub>MDIH</sub>  | MDIO     |                                                                      | 0.0   | -     | ns   |         |
| MDIO output delay time | t <sub>MDOD</sub>  | MDIO     |                                                                      | 10.0  | 190.0 | ns   |         |

**Notes: This is Target Spec.**



#### 9.1.4.19 MediaLB

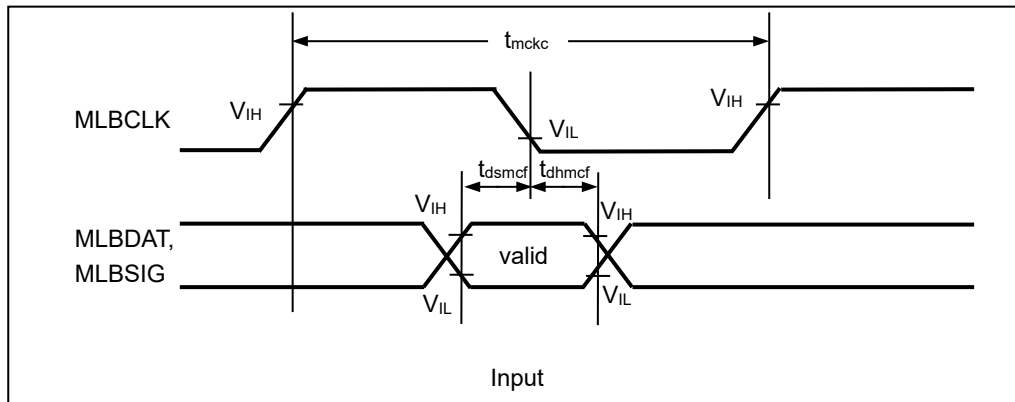
### (1) MediaLB Input Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                     | Symbol             | Pin Name         | Conditions | Value |     | Unit | Remarks |
|-------------------------------|--------------------|------------------|------------|-------|-----|------|---------|
|                               |                    |                  |            | Min   | Max |      |         |
| MLBCLK cycle                  | t <sub>mckc</sub>  | MLBCLK           | -          | 40.0  | -   | ns   | -       |
| MLBSIG, MLBDAT<br>Input setup | t <sub>dsmcf</sub> | MLBSIG<br>MLBDAT |            | 1.0   | -   | ns   |         |
| MLBSIG, MLBDAT<br>Input hold  | t <sub>dhmcf</sub> | MLBSIG<br>MLBDAT |            | 4.0   | -   | ns   |         |

**Notes: This is Target Spec.**

- CLK\_HAPP1B0 (internal) frequency > MLBCLK (external) frequency



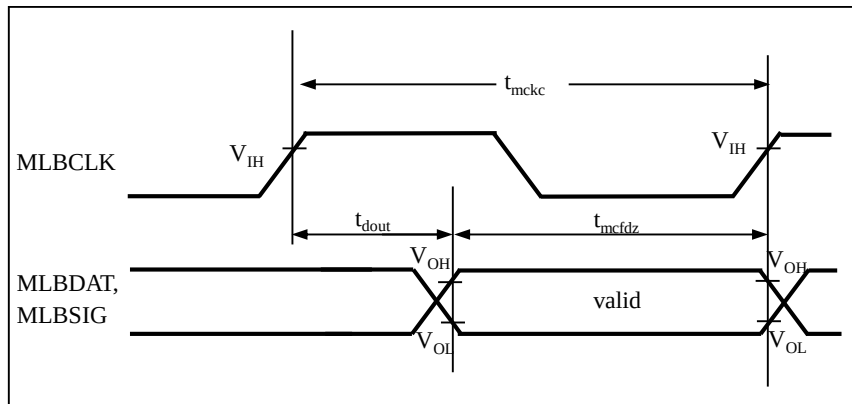
### (2) MediaLB Output Timing

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC3</sub> = 3.3 V ± 0.3 V, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                      | Symbol             | Pin Name         | Conditions                                                           | Value |      | Unit | Remarks                               |
|--------------------------------|--------------------|------------------|----------------------------------------------------------------------|-------|------|------|---------------------------------------|
|                                |                    |                  |                                                                      | Min   | Max  |      |                                       |
| MLBCLK cycle                   | t <sub>mckc</sub>  | MLBCLK           | (CL = 20 pF,<br>I <sub>OL</sub> = -6 mA,<br>I <sub>OH</sub> = 6 mA), | 40.0  | -    | ns   | t <sub>mckc</sub> - t <sub>dout</sub> |
| MLBSIG, MLBDAT<br>output stop  | t <sub>mcfdz</sub> | MLBSIG<br>MLBDAT |                                                                      | 26.5  | -    | ns   |                                       |
| MLBSIG, MLBDAT<br>output delay | t <sub>dout</sub>  | MLBSIG<br>MLBDAT |                                                                      | 0     | 13.5 | ns   |                                       |

**Notes: This is Target Spec.**

- CLK\_HAPP1B0 (internal) frequency > MLBCLK (external) frequency



**9.1.4.20 Port Noise Filter**

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub>, V<sub>CC53</sub>, DV<sub>CC5</sub> = 5.0 V ± 10 %, V<sub>SS</sub> = DV<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

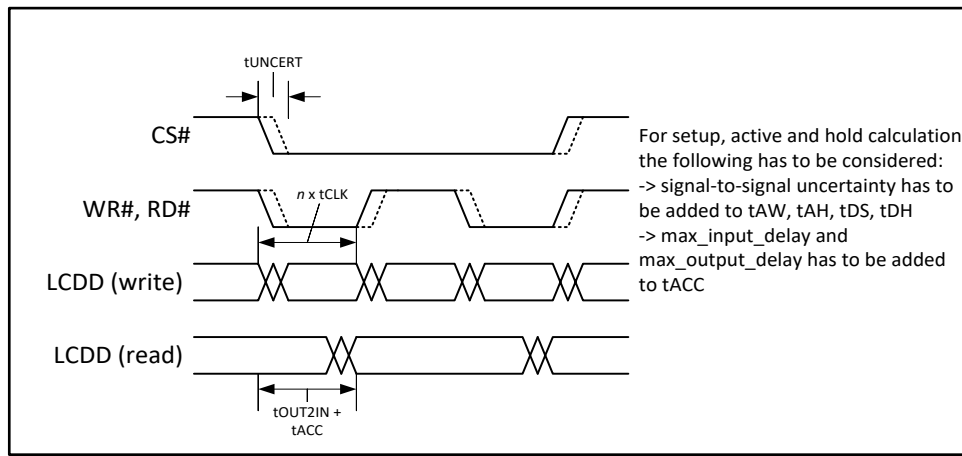
| Parameter               | Symbol | Pin Name | Conditions | Value |     | Unit | Remarks |
|-------------------------|--------|----------|------------|-------|-----|------|---------|
|                         |        |          |            | Min   | Max |      |         |
| Width for input removal | -      | ALL GPIO | -          | -     | 17  | ns   | -       |

\* Input pulse width less than at least 17 ns is removed when Port noise filter is enabled.

#### 9.1.4.21 LCD Bus I/F

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC53</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>SS</sub> = 0.0 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V)

| Parameter                    | Symbol  | Pin Name | Conditions                                                           | Value |      | Unit | Remarks |
|------------------------------|---------|----------|----------------------------------------------------------------------|-------|------|------|---------|
|                              |         |          |                                                                      | Min   | Max  |      |         |
| Clock cycle time             | tCLK    | WR#, RD# | (CL = 20 pF,<br>I <sub>OL</sub> = -5 mA,<br>I <sub>OH</sub> = 5 mA), | 12.5  | -    | ns   | -       |
| Signal-to-Signal uncertainty | tUNCERT | CS#      |                                                                      | -     | 5.0  | ns   | -       |
| Output to input duration     | tOUT2IN | LCDD0-17 |                                                                      | -     | 25.0 | ns   | -       |



#### Note:

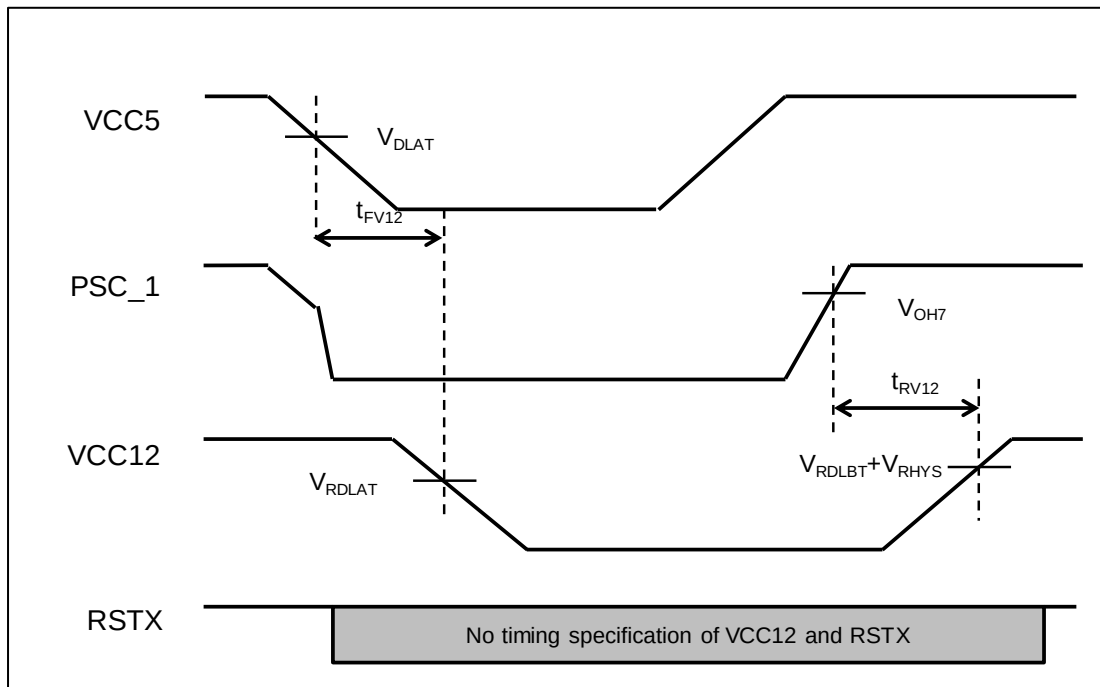
- In order to calculate interface timing, refer to the LCD controller specification of the external display for the required AC characteristics and S6J3300 Series Hardware Manual.

#### 9.1.4.22 Power and Reset Sequence

VCC5 and VCC12 sequence

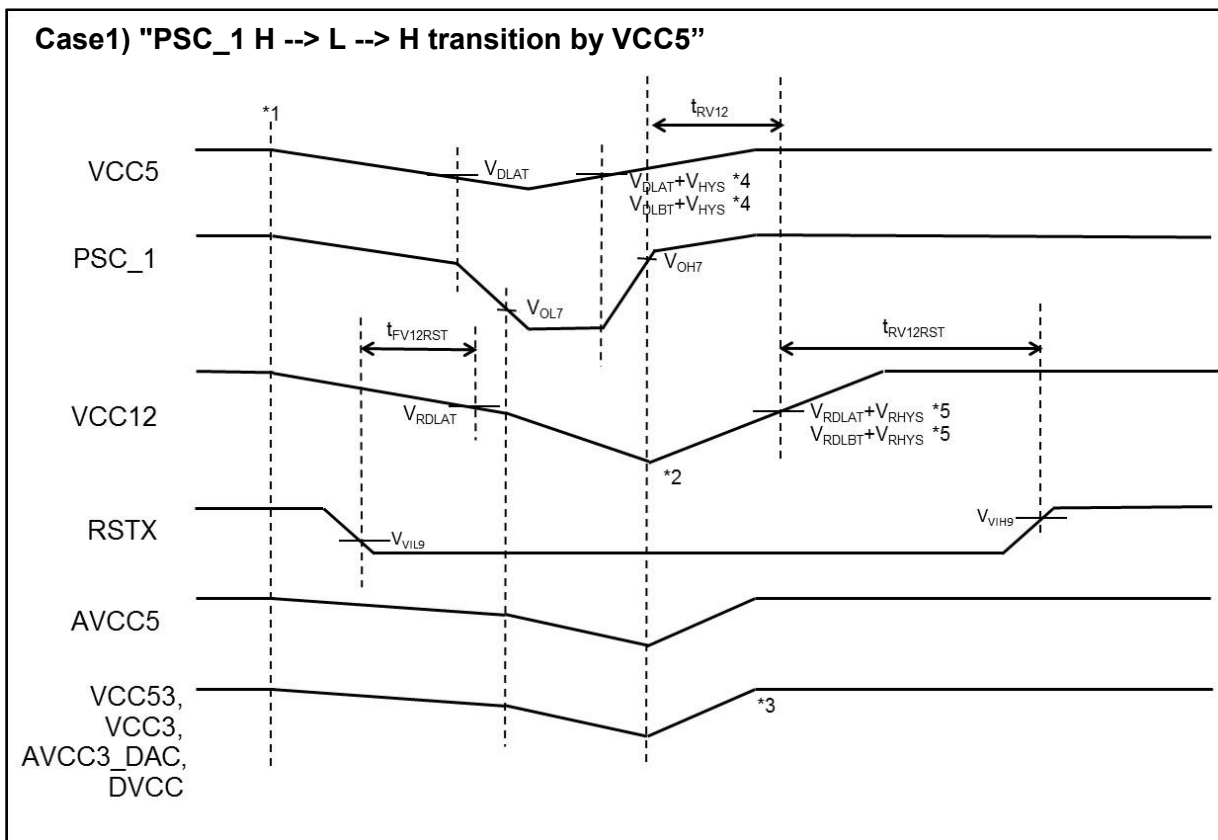
(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = 0.0 V)

| Parameter                                             | Symbol            | Pin Name | Conditions | Value |      | Unit | Remarks |
|-------------------------------------------------------|-------------------|----------|------------|-------|------|------|---------|
|                                                       |                   |          |            | Min   | Max  |      |         |
| Wait time from LVDH1 level detection to falling VCC12 | t <sub>FV12</sub> | VCC12    | -          | 0.6   | -    | ms   | -       |
| VCC12 stabilization time during power-on              | t <sub>RV12</sub> | VCC12    | -          | -     | 14.2 | ms   | -       |



#### Note:

- V<sub>DLAT</sub>, V<sub>RDLAT</sub>, V<sub>RDLBT</sub> and V<sub>RHYS</sub> are referred to "9.1.4.11 Low Voltage Detection (External Voltage)". V<sub>OH7</sub> is referred to "9.1.3 DC Characteristics".
- LVDH1 reset need to be "always enable". For details, see the Traveo™ Platform Hardware Manual.
- The above sequence needs not to be applied in the following cases the application enters PSS mode: "VCC12 is controlled by PSC\_1 at entry and exit from PSS mode" (Normal Sequence).


**Note:**

- RSTX controlled by VCC5.
- VCC12 and AVCC5 controlled by PSC\_1.
- VCC53, VCC3, AVCC3\_DAC and DVCC controlled by PSC\_1. Can be controlled by VCC5 GPIO also.
- VDLAT, VDLBT and VHYS are referred to "9.1.4.11 Low Voltage Detection (External Voltage)".  
VRDLAT, VRDLBT and VRHYS are referred to "9.1.4.12 Low Voltage Detection (Internal Voltage)".  
VOH7, VIL9 and VIH9 are referred to "9.1.3 DC Characteristics".  
 $t_{RV12}$ ,  $t_{FV12RST}$  and  $t_{RV12RST}$  are referred to "9.1.4.22 Power and Reset Sequence".

\*1: Battery Disconnect: All supplies fall together.

\*2: VCC12 can be fully depleted or not full depleted.

\*3: DVCC, VCC53 and VCC3 can start before or after VCC12.

\*4: VCC5 is higher than level detection voltage:  $VDLAT+VHYS$

VCC5 is lower than level detection voltage:  $VDLBT+VHYS$

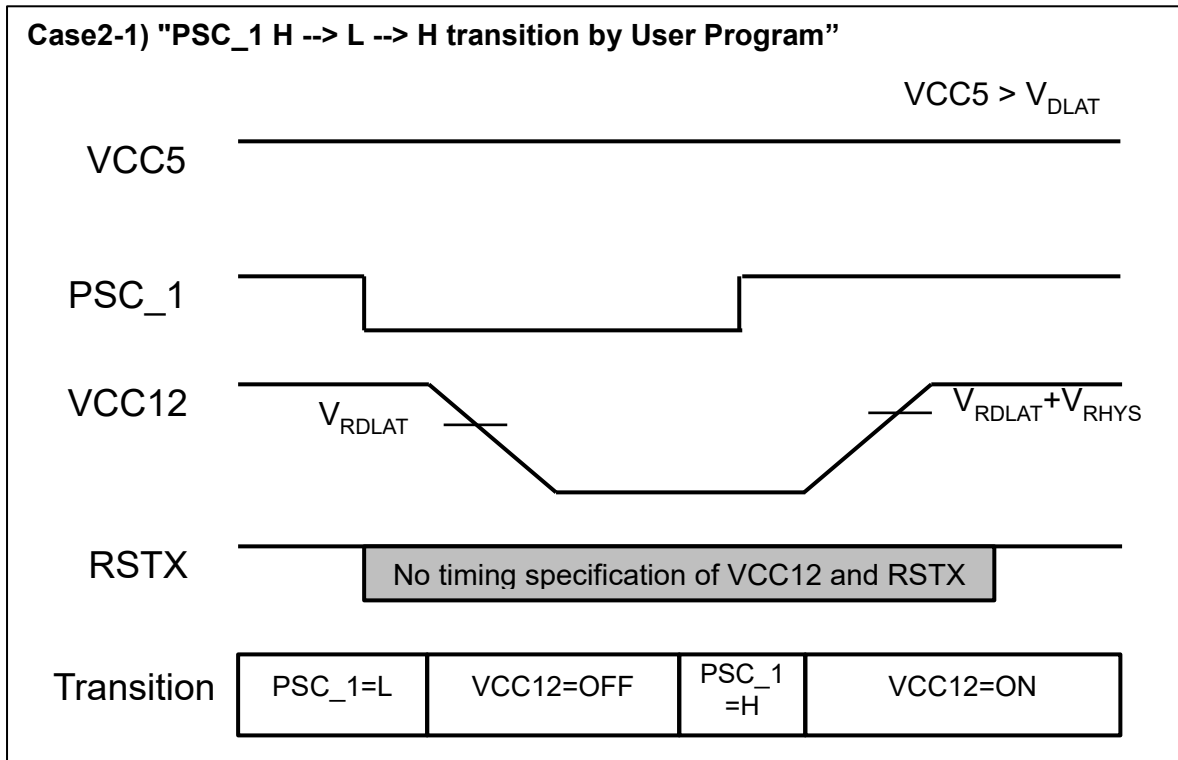
VDLAT, VDLBT and VHYS are referred to "9.1.4.11 Low Voltage Detection (External Voltage)".

\*5: VCC5 is higher than level detection voltage:  $VRDLAT+VRHYS$

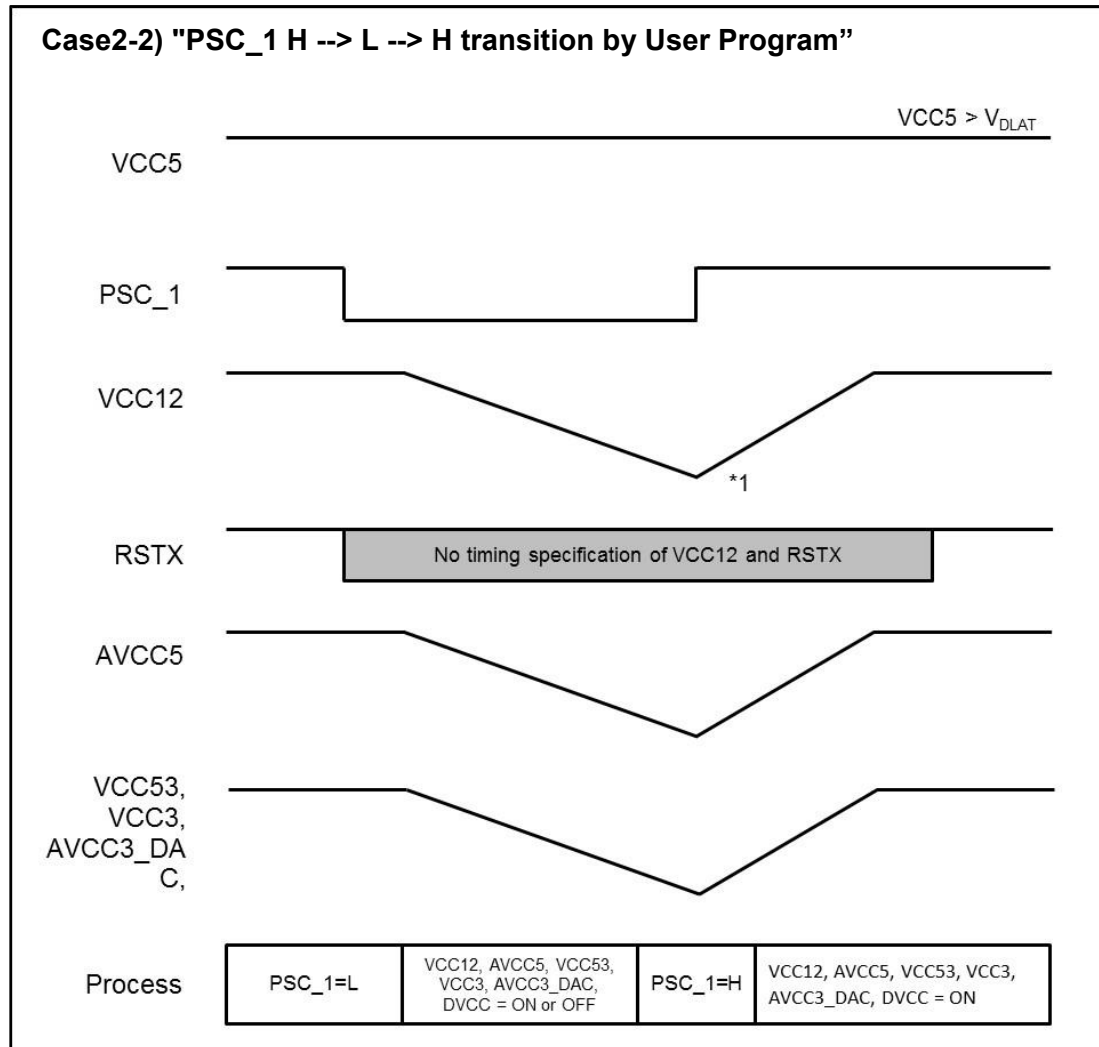
VCC5 is lower than level detection voltage:  $VRDLBT+VRHYS$

VRDLAT, VRDLBT and VRHYS are referred to "9.1.4.11 Low Voltage Detection (External Voltage)".




**Note:**

- VCC12 controlled by PSC\_1.
- VCC12 can be fully deplete


**Note:**

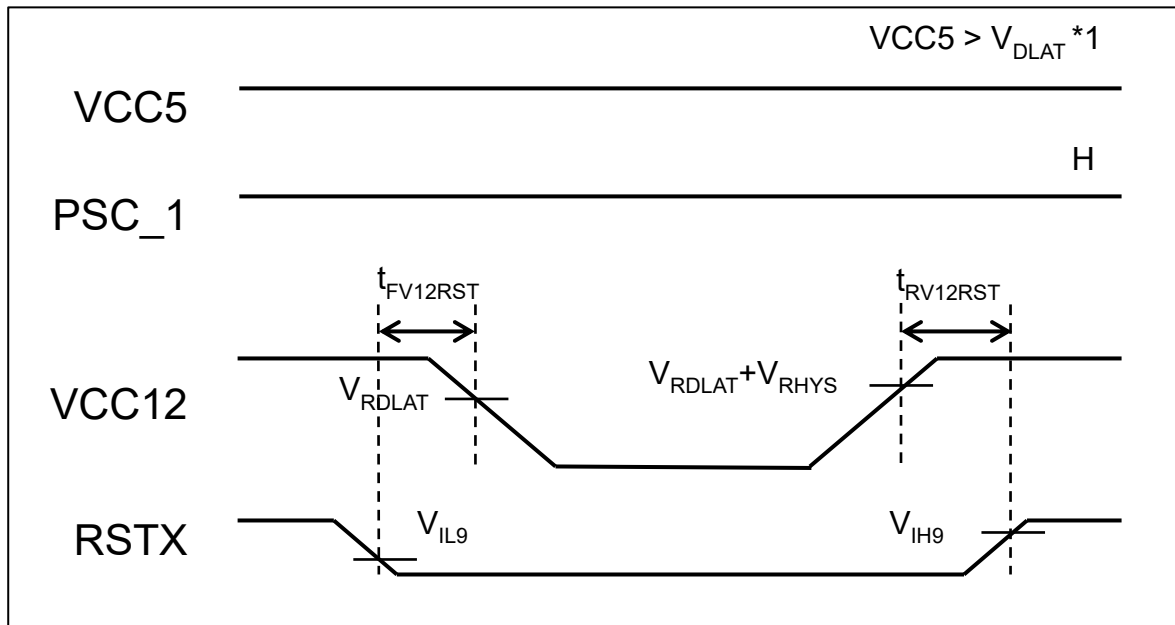
- VCC12 and AVCC5 controlled by PSC\_1.
- VCC53, VCC3, AVCC3\_DAC and DVCC controlled by PSC\_1. Can be controlled by VCC5 GPIO also.

\*1: VCC12 can be fully depleted or not full depleted.

### VCC12 and RSTX Sequence

(T<sub>A</sub>: Recommended operating conditions, V<sub>SS</sub> = 0.0 V)

| Parameter                        | Symbol               | Pin Name    | Conditions | Value |     | Unit | Remarks |
|----------------------------------|----------------------|-------------|------------|-------|-----|------|---------|
|                                  |                      |             |            | Min   | Max |      |         |
| RSTX -> VCC12 fall interval time | t <sub>FV12RST</sub> | VCC12, RSTX | -          | 5     | -   | us   | -       |
| VCC12 -> RSTX rise interval time | t <sub>RV12RST</sub> | VCC12, RSTX |            | 35    | -   | us   | -       |



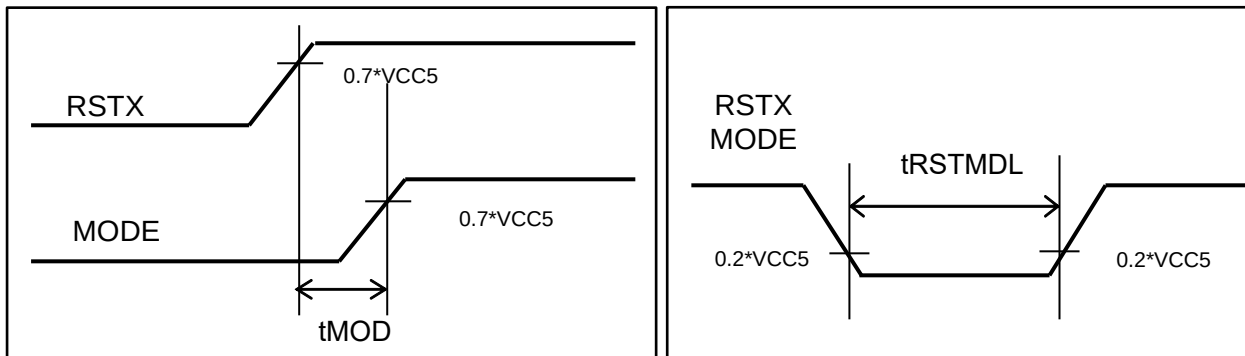
#### Note:

- If the sequence given in "[VCC5 and VCC12 sequence](#)" cannot be applied, this sequence can be applied.
- VDLAT, VRDLAT, VRDLAT and VRHYS are referred to "[9.1.4.11 Low Voltage Detection \(External Voltage\)](#)". VIL9 and VIH9 is referred to "[9.1.3 DC Characteristics](#)".
- This sequence is applied in case of VCC12 power on/off and assertion of RSTX is controlled by application.
- This sequence is applied under the condition VCC5 > VDLAT and PSC\_1 = H.

### RSTX and MODE Sequence

(T<sub>A</sub>: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ± 10 % / 3.3 V ± 0.3 V, V<sub>SS</sub> = 0.0 V)

| Parameter                              | Symbol              | Pin Name   | Conditions | Value |     | Unit | Remarks |
|----------------------------------------|---------------------|------------|------------|-------|-----|------|---------|
|                                        |                     |            |            | Min   | Max |      |         |
| RSTX ↑ -> MODE ↑ delay time            | t <sub>MOD</sub>    | RSTX, MODE | -          | -5    | 5   | ns   | -       |
| Reset and mode input time              | t <sub>RSTMDL</sub> | RSTX, MODE | -          | 10    | -   | us   | -       |
| Width for reset and mode input removal |                     |            |            | 1     | -   | us   | -       |



#### Note:

- If the sequence given in "[VCC5 and VCC12 sequence](#)" and "[VCC12 and RSTX Sequence](#)" cannot be applied, this sequence can be applied.
- Connect RSTX signal and MODE signal outside of the MCU and shorten the trace length between MCU and these two signal lines.
- The following assumptions are made with regard to the workaround described above.
  1. After the reset the MCU state is equivalent to the "cold start state" usually reached by power-on-reset.
  2. Debugger interface and PC writer interface are not enabled.
  3. The RAM retention cannot be guaranteed when applying this workaround
  4. Pin PSC\_1 will be driven low while RSTX is active (RSTX at low level)

**9.1.5 A/D Converter**
**9.1.5.1 Electrical Characteristics**

 (TA: Recommended operating conditions, V<sub>CC5</sub> = 5.0 V ± 10 %, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                     | Symbol           | Pin Name                     | Conditions                     |     |                                | Unit | Remarks                                                    |
|-------------------------------|------------------|------------------------------|--------------------------------|-----|--------------------------------|------|------------------------------------------------------------|
|                               |                  |                              | Min                            | Typ | Max                            |      |                                                            |
| Resolution                    | -                | -                            | -                              | -   | 12                             | bit  | -                                                          |
| Total Error                   | -                | -                            | -                              | -   | ±12 <sup>*6</sup>              | LSB  | <sup>*3</sup>                                              |
|                               |                  |                              | -                              | -   | ±15 <sup>*7</sup>              | LSB  | -                                                          |
| Integral Non linearity        | -                | -                            | -                              | -   | ±4.0                           | LSB  | <sup>*4</sup>                                              |
| Differential Non linearity    | -                | -                            | -                              | -   | ±1.9                           | LSB  | <sup>*4</sup>                                              |
| Zero transition voltage       | V <sub>ZT</sub>  | AN0 to AN63                  | AVRL<br>-11.5LSB <sup>*6</sup> | -   | AVRL<br>+12.5LSB <sup>*6</sup> | V    | <sup>*5</sup>                                              |
|                               |                  |                              | AVRL<br>-14.5LSB <sup>*7</sup> | -   | AVRL<br>+15.5LSB <sup>*7</sup> | V    |                                                            |
| Full-scale transition voltage | V <sub>FST</sub> | AN0 to AN63                  | AVRH<br>-13.5LSB <sup>*6</sup> | -   | AVRH<br>+10.5LSB <sup>*6</sup> | V    | -                                                          |
|                               |                  |                              | AVRH<br>-16.5LSB <sup>*7</sup> | -   | AVRH<br>+13.5LSB <sup>*7</sup> | V    |                                                            |
| Sampling time                 | t <sub>SMP</sub> | -                            | 0.3                            | -   | -                              | µs   | <sup>*1</sup>                                              |
| Compare time                  | t <sub>CMP</sub> | -                            | 0.8                            | -   | 26                             | µs   | <sup>*1</sup>                                              |
| A/D conversion time           | t <sub>CNV</sub> | -                            | 1.1                            | -   | -                              | µs   | <sup>*1</sup>                                              |
| Resumption Time               | -                | -                            | -                              | -   | 1                              | µs   | -                                                          |
| Analog port input current     | I <sub>AIN</sub> | AN0 to AN30,<br>AN32 to AN38 | -1.0                           | -   | 1.0                            | µA   | AV <sub>SS</sub> ≤ V <sub>AIN</sub> ≤<br>AV <sub>CC5</sub> |
|                               |                  | AN31,<br>AN39 to AN63        | -2.0                           | -   | 2.0                            | µA   |                                                            |
| Analog input voltage          | V <sub>AIN</sub> | AN0 to AN63                  | AVRL                           | -   | AVRH                           | V    | -                                                          |
| Reference voltage             | AVRH             | AVRH5                        | 4.5 <sup>*6</sup>              | -   | 5.5 <sup>*6</sup>              | V    | AV <sub>CC5</sub> ≥<br>AVRH                                |
|                               |                  |                              | 3.0 <sup>*7</sup>              | -   | 3.6 <sup>*7</sup>              | V    |                                                            |
|                               | AVRL             | AVRL5/AVSS                   | -                              | 0.0 | -                              | V    | -                                                          |
| Power supply current          | I <sub>A</sub>   | AVCC5                        | -                              | 500 | 900 (Target)                   | µA   | 1 unit                                                     |
|                               | I <sub>AH</sub>  |                              | -                              | 1.0 | 200 (Target)                   | µA   | <sup>*2</sup>                                              |
|                               | I <sub>R</sub>   | AVRH5                        | -                              | 1.0 | 3.5 (Target) <sup>*6</sup>     | mA   | 1 unit                                                     |
|                               |                  |                              | -                              | 1.0 | 2.5 (Target) <sup>*7</sup>     | mA   | 1 unit                                                     |
|                               | I <sub>RH</sub>  | -                            | -                              | -   | 9.0 (Target)                   | µA   | <sup>*2</sup>                                              |
| Variation between channels    | -                | AN0 to AN63                  | -                              | -   | 4.0                            | LSB  | -                                                          |

<sup>\*1</sup>: Time per channel

<sup>\*2</sup>: Definition of the power supply current (when V<sub>CC5</sub> = AV<sub>CC5</sub> = 5.0 V) while the A/D converter is not operating and in stop mode

<sup>\*3</sup>: Total Error is a comprehensive static error that includes the linearity after trimming by software. 1 LSB = (AVRH-AVRL)/4096

<sup>\*4</sup>: 1 LSB = (VFST-VZT)/4094

<sup>\*5</sup>: 1 LSB = (AVRH-AVRL)/4096

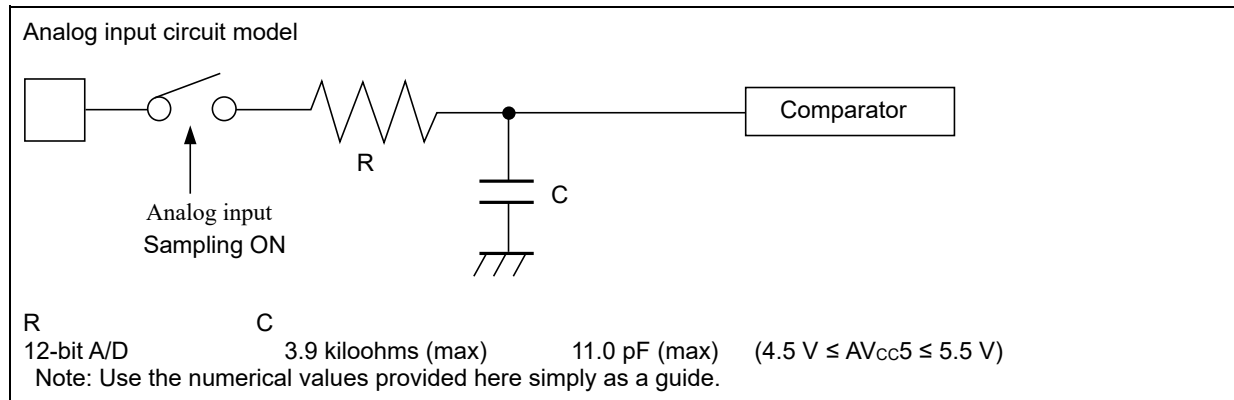
<sup>\*6</sup>: For S6J33xxxSx or S6J33xxxUx or S6J33xxxTx or S6J33xxxVx option.

<sup>\*7</sup>: For S6J33xxxAx or S6J33xxxBx or S6J33xxxCx or S6J33xxxDx or S6J33xxxEx or S6J33xxxFx or S6J33xxxGx or S6J33xxxHx option.

### 9.1.5.2 Notes on A/D Converters

#### About the Output Impedance of an External Circuit for Analog Input

When the external impedance is too high, the analog voltage sampling time may become insufficient. In this case, we recommend attaching a capacitor (about 0.1  $\mu\text{F}$ ) to an analog input pin.



### 9.1.5.3 Glossary

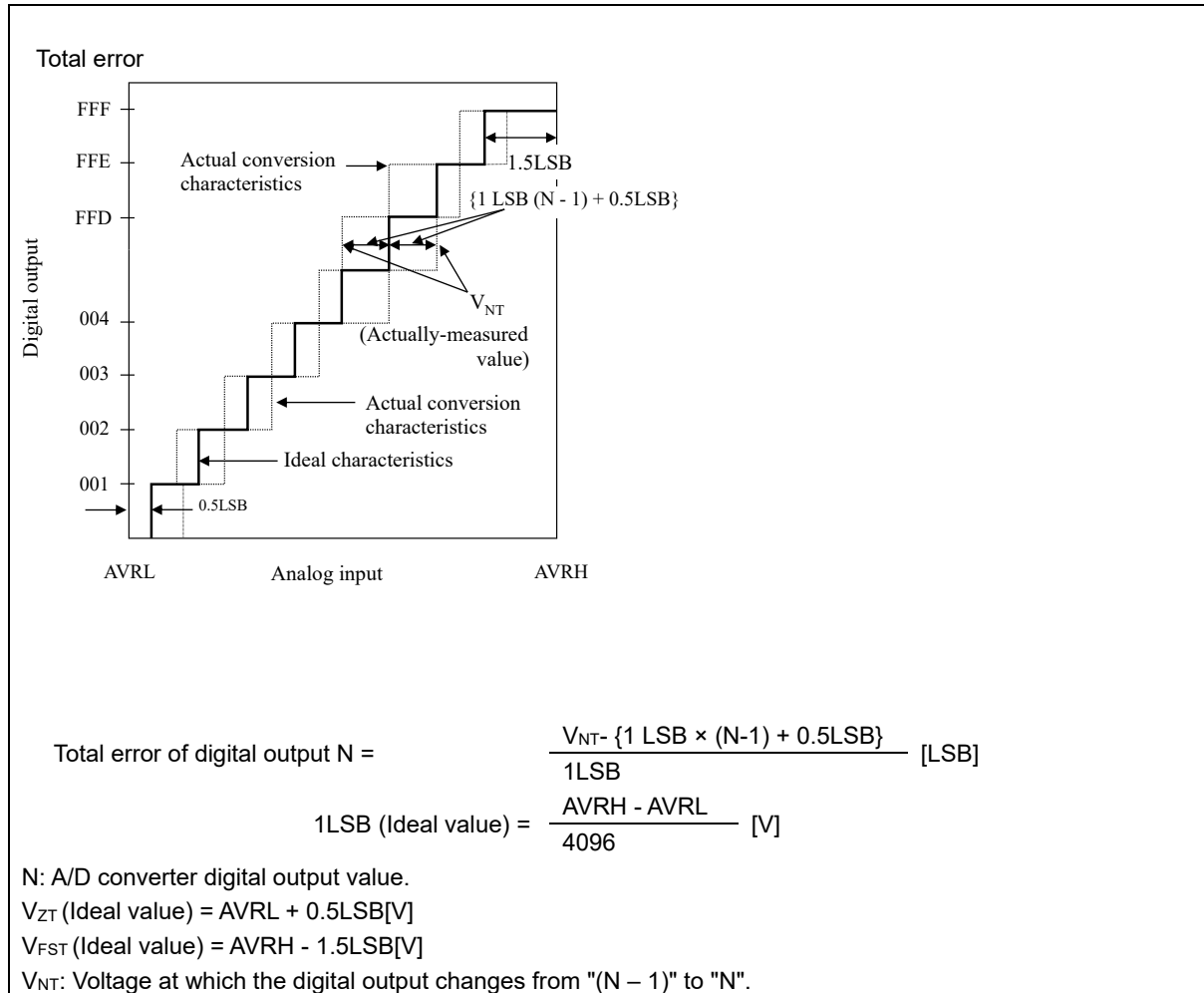
**Resolution:** Analog change that can be identified by an A/D converter

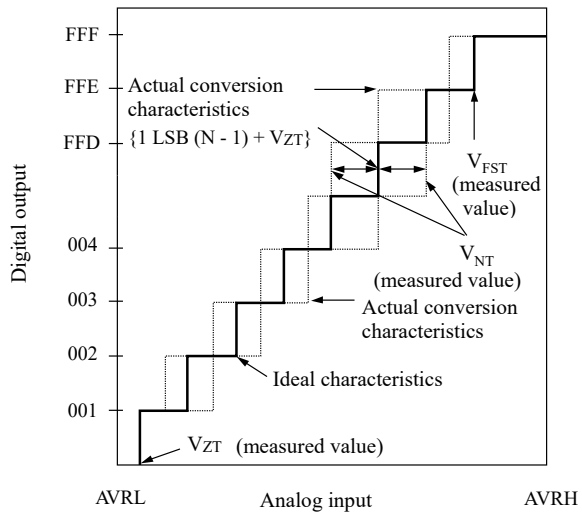
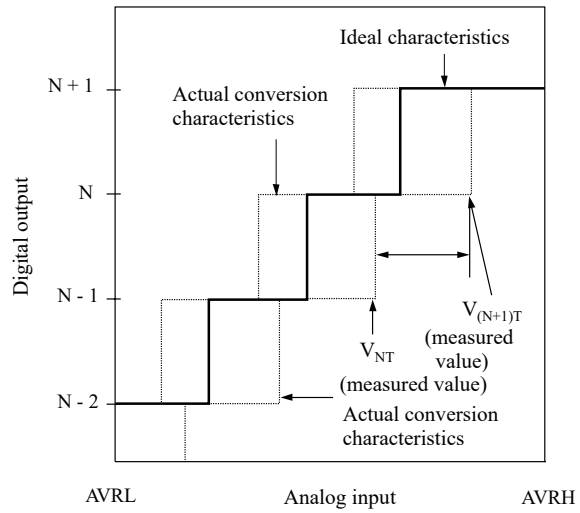
**Integral linearity error:** Deviation of the straight line connecting the zero transition point ("0000 0000 0000" <--> "0000 0000 0001") and full-scale transition point ("1111 1111 1110" <--> "1111 1111 1111") from actual conversion characteristics

includes zero transition error, full-scale transition error, and non linearity error.

**Differential linearity error:** Deviation from the ideal value of the input voltage required for changing the output code by 1 LSB

**Total error:** Difference between the actual value and the theoretical value. The total error



**Integral linearity error**

**Differential linearity error**


$$\text{Integral linearity error of digital output } N = \frac{V_{NT} - \{1 \text{ LSB} \times (N-1) + V_{ZT}\}}{1 \text{ LSB}} \text{ [LSB]}$$

$$\text{Differential linearity error of digital output } N = \frac{V_{(N+1)T} - V_{NT}}{1 \text{ LSB}} - 1 \text{ LSB [LSB]}$$

$$1 \text{ LSB} = \frac{V_{FST} - V_{ZT}}{4094} \text{ [V]}$$

$V_{ZT}$ : Voltage for which digital output changes from "0x000" to "0x001"

$V_{FST}$ : Voltage for which digital output changes from "0xFFE" to "0xFFF".



### 9.1.6 Audio DAC

#### 9.1.6.1 Electrical Characteristics

(T<sub>A</sub>: Recommended operating conditions, AV<sub>CC3\_DAC</sub> = 3.3 V ± 0.3 V, V<sub>CC12</sub> = 1.15 V ± 0.06 V, V<sub>SS</sub> = AV<sub>SS</sub> = 0.0 V)

| Parameter                                           | Symbol              | Pin Name                         | Conditions *1                                     | Value                          |                                |        | Unit             | Remarks |   |
|-----------------------------------------------------|---------------------|----------------------------------|---------------------------------------------------|--------------------------------|--------------------------------|--------|------------------|---------|---|
|                                                     |                     |                                  |                                                   | Min                            | Typ                            | Max    |                  |         |   |
| system clock frequency                              | F <sub>CLKDA0</sub> | -                                | -                                                 | 2.048                          | -                              | 18.432 | MHz              | -       |   |
| sampling clock                                      | fs                  | -                                | -                                                 | 8                              | -                              | 48     | kHz              | -       |   |
| Analog output load resistance *2                    | R <sub>L</sub>      | DAC_L<br>DAC_R                   | -                                                 | 20                             | -                              | -      | kΩ               | -       |   |
| Analog output load capacitance *2                   | C <sub>L</sub>      | DAC_L<br>DAC_R                   | -                                                 | -                              | -                              | 100    | pF               | -       |   |
| capacitance                                         | -                   | C <sub>L</sub><br>C <sub>R</sub> | -                                                 | 1.1                            | 2.2                            | 10     | μF               | -       |   |
| Analog output single-end output range (±full scale) | -                   | DAC_L<br>DAC_R                   | R <sub>L</sub> = 20 kΩ<br>C <sub>L</sub> = 100 pF | -                              | 0.673<br>AV <sub>CC3_DAC</sub> | -      | V <sub>P-P</sub> | -       |   |
| Analog output voltage (zero)                        | -                   |                                  | -                                                 | -                              | 0.5<br>AV <sub>CC3_DAC</sub>   | -      | V                | -       |   |
| THD+N *3                                            | -                   | -                                | signal frequency:<br>1 kHz<br>LPF (fc: 20 kHz)    | -                              | -82                            | -72    | dB               | -       |   |
| SNR *3                                              | -                   | -                                | signal frequency:<br>1 kHz                        | 85                             | 89                             | -      | dB               | -       |   |
| Dynamic range *3                                    | -                   | -                                | LPF (fc: 20 kHz)—<br>— A-weighting filter         | 83                             | 86                             | -      | dB               | -       |   |
| Out-of-Band Energy                                  | -                   | -                                | 20 kHz to 64 fs                                   | -                              | -                              | -33    | dB               | -       |   |
| Channel Separation                                  | -                   | -                                | -                                                 | -                              | 80                             | -      | dB               | -       |   |
| Output impedance                                    | -                   | -                                | -                                                 | 150                            | 200                            | 250    | Ω                | -       |   |
| PSRR                                                | -                   | -                                | digital input: zero                               | noise 50 Hz                    | -                              | -35    | -                | dB      | - |
|                                                     |                     |                                  |                                                   | noise 1 kHz                    | -                              | -50    | -                | dB      | - |
|                                                     |                     |                                  |                                                   | noise 20 kHz                   | -                              | -40    | -                | dB      | - |
|                                                     |                     |                                  |                                                   | digital input: full scale sine | -                              | -13    | -                | dB      | - |
| Supply current normal operation                     | -                   | AVCC3_DAC                        | -                                                 | -                              | 2.2                            | 3.2    | mA               | -       |   |
| Supply current power-down                           | -                   | AVCC3_DAC                        | -                                                 | -                              | -                              | 100    | μA               | -       |   |
| Startup Time *4                                     | -                   | -                                | DAE↑                                              | -                              | 650 *6                         | -      | ms               | -       |   |

\*1: All parameters specified fs = 44.1 kHz, system clock 256 fs and 16-bit data, R<sub>L</sub>-20 kΩ, C<sub>L</sub> = 100 pF, unless otherwise noted.

\*2: Refer to notes \*5

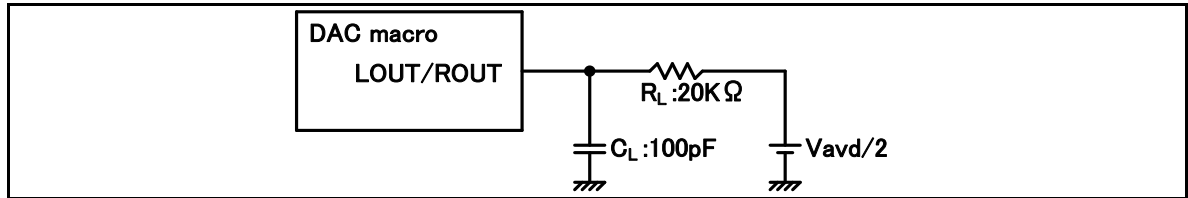
\*3: These values do not include the noise caused by the analog power supply. (Refer to \*7. Use examples)

\*4: 2.2 μF is connected to C<sub>L</sub>, C<sub>R</sub>.

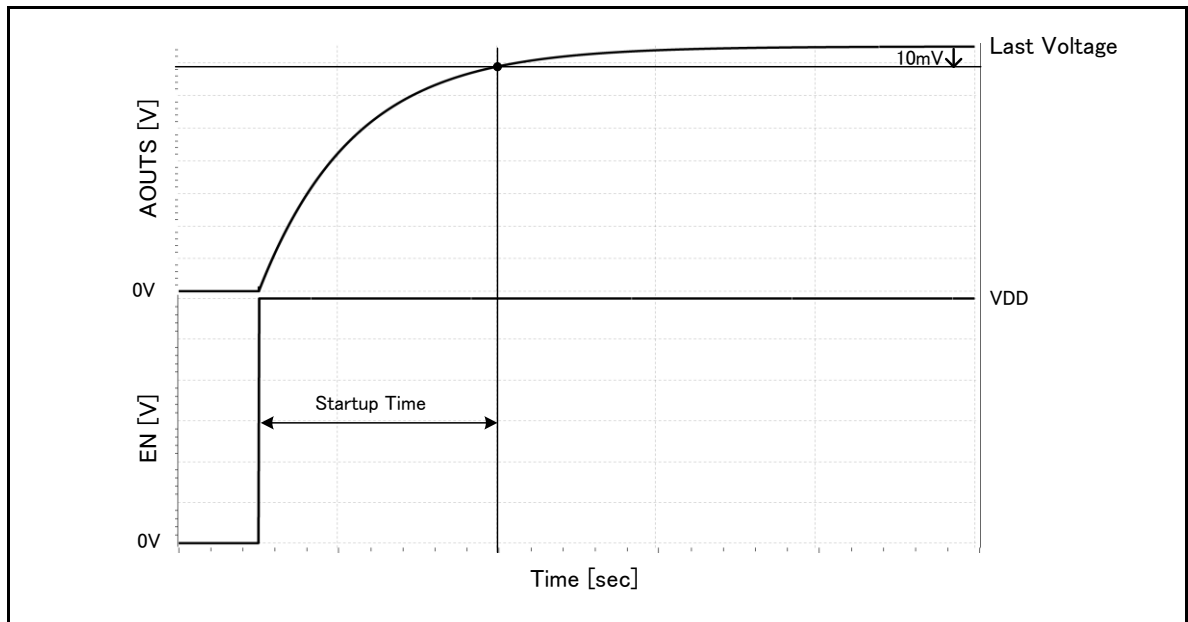
\*5: Load connection

R<sub>L</sub> is connected to AVCC3\_DAC /2 (Figure 9.1).

If R<sub>L</sub> is connected to ground, the coupling capacitance must be inserted as shown in (Figure 9.3)

**Figure 9-1: Connection between R<sub>L</sub> and AVCC\_DAC/2 (Example)**


\*6: Start up time

**Figure 9-2: Startup Time**


\*Start up time can be calculated as follows.

1.Start up time (TYP) = 650[ms] (\*4)

2.CCOM =  $10 \mu\text{F} \times (1 \pm \alpha/100)$

CCOM is a capacitor connected to Terminal C<sub>L</sub>/C<sub>R</sub> including capacitance variance.

$\alpha$  = Capacitance variance[%]

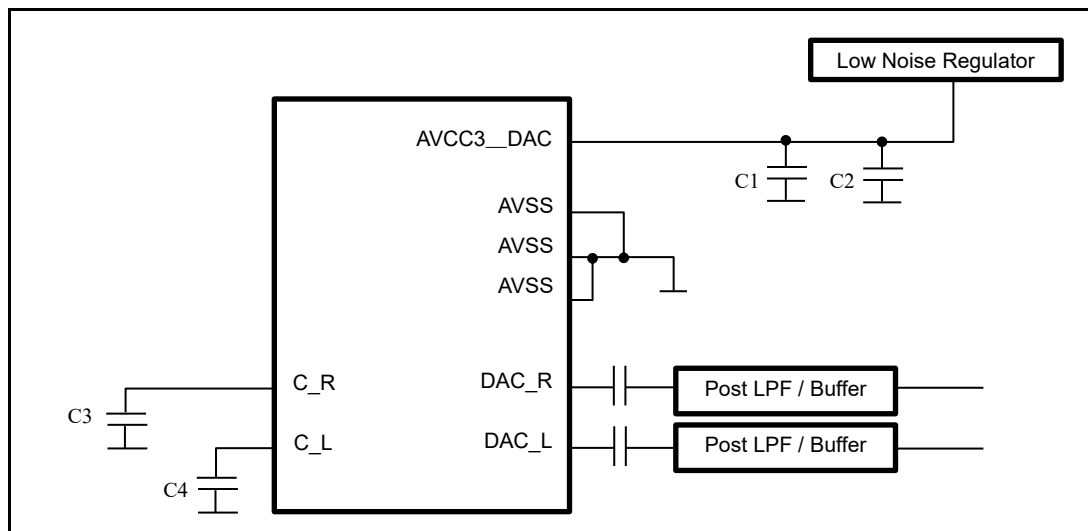
3.Start up time = Start up time (TYP)  $\times (1 \pm \alpha)$  [ms]

For example, CCOM = 2.42  $\mu\text{F}$  then  $\alpha = (2.42 \mu\text{F} - 2.2 \mu\text{F})/2.2 \mu\text{F} = 10\%$

So, Start up time = 650 ms  $\times (1+10/100) = 715\text{[ms]}$

\*7 Use examples

**Figure 9-3: Coupling Capacitance (Example)**



**Notes:**

- C1: more than 10  $\mu\text{F}$  low ESR capacitors
- C2: 0.1  $\mu\text{F}$  ceramic capacitors
- C3,C4: 2.2  $\mu\text{F}$  low ESR capacitors
- Impedance of each power line must be as low as possible.

**Notes:**

- When DAC is not used in your system, the related pins should be
- AVCC3\_DAC = GND and AVSS = GND
- C\_L = OPEN and C\_R = OPEN
- DAC\_L = OPEN and DAC\_R = OPEN

### 9.1.7 FLASH Memory

#### 9.1.7.1 Electrical Characteristics

| Parameter                                      | Rating                                               |     |     | Unit | Remarks                                                                                     |
|------------------------------------------------|------------------------------------------------------|-----|-----|------|---------------------------------------------------------------------------------------------|
|                                                | Min                                                  | Typ | Max |      |                                                                                             |
| Sector erase time                              | -                                                    | 120 | 180 | ms   | Large sector <sup>*1</sup><br>Internal preprogramming time included                         |
|                                                | -                                                    | 120 | 180 | ms   | 8 kB sector <sup>*1</sup><br>Internal preprogramming time included                          |
|                                                | -                                                    | 120 | 180 | ms   | 4 kB sector <sup>*2</sup><br>Internal preprogramming time included                          |
| 16-bit write time (Program)                    | -                                                    | 30  | 60  | μs   | System-level overhead time excluded <sup>*1</sup>                                           |
| 32-bit write time (Program)                    | -                                                    | 30  | 60  | μs   | System-level overhead time excluded <sup>*1</sup>                                           |
| 64-bit write time (Program)                    | -                                                    | 30  | 60  | μs   | System-level overhead time excluded <sup>*1</sup>                                           |
| 256-bit write time (Program)                   | -                                                    | 40  | 70  | μs   | System-level overhead time excluded <sup>*1</sup>                                           |
| Page mode write time (Program)                 | -                                                    | 320 | 600 | μs   | System-level overhead time excluded <sup>*1</sup>                                           |
| 32-bit write time (Work)                       | -                                                    | 30  | 60  | μs   | System-level overhead time excluded <sup>*2</sup>                                           |
| Erase count /<br>Data retention time (Program) | 1,000/20 years                                       | -   | -   | -    | Temperature at write/erase time<br>Average temperature T <sub>A</sub> = +85 degrees Celsius |
| Erase count /<br>Data retention time (Work)    | 1,000/20 years<br>10,000/10 years<br>100,000/5 years | -   | -   | -    | Temperature at write/erase time<br>Average temperature T <sub>A</sub> = +85 degrees Celsius |

\*1: Guaranteed value for up to 1,000 erases

\*2: Guaranteed value for up to 100,000 erases

#### 9.1.7.2 Notes

While the Flash memory is written or erased, shutdown of the external power (Vcc5) is prohibited.

In the application system where Vcc5 might be shut down while writing or erasing, be sure to turn the power off by using an external voltage detection function.

To put it concretely, after the external power supply voltage falls below the detection voltage (V<sub>DL</sub>), hold Vcc5 at 2.7 V or more within the duration calculated by the following expression:

$$T_d^{*1} [\mu s] + (1 / F_{CRF}^{*2} [MHz]) \times 1029 + 25 [\mu s]$$

\*1: See "9.1.4.11 Low Voltage Detection (External Voltage)"

\*2: See "9.1.4.1 Source Clock Timing"

## 10. Acronyms

| Acronym       | Description                               |
|---------------|-------------------------------------------|
| A/D converter | Analog digital converter                  |
| ADC           | Analog digital converter                  |
| AHB           | Advanced high performance bus             |
| AMBATM        | Advanced microcontroller bus architecture |
| APB           | Advanced peripheral bus                   |
| ATCM          | TCM-A port                                |
| AXI           | Advanced extensible interface             |
| B0TCM         | TCM B0 port                               |
| B1TCM         | TCM B1 port                               |
| BBU           | Bit banding unit                          |
| BDR           | Boot description record                   |
| BTL           | Bridge-tied load                          |
| CAN           | Control are network                       |
| CD            | Clock domain                              |
| CPU           | Central processing unit                   |
| CR            | CR Oscillator                             |
| CRC           | Cyclic redundancy check                   |
| CSV           | Clock supervisor                          |
| DAC           | Digital analog converter                  |
| DAP           | Debug access port                         |
| DED           | Dual error detection                      |
| DMA           | Direct memory access                      |
| DMAC          | DMA controller                            |
| EAM           | Exclusive access memory                   |
| ECC           | Error correction code                     |
| ETM           | Embedded trace macro                      |
| EXT-IRC       | External interrupt controller             |
| FIQ           | Fast interrupt request                    |
| FPU           | Floating point unit                       |
| FRT           | Free run timer                            |
| GPIO          | General purpose I/O                       |
| HPM           | High performance matrix                   |
| HW-WDT        | Hardware watchdog timer                   |
| I/O           | Input or output                           |
| I2S           | Inter-IC sound                            |
| ICU           | Input capture unit                        |
| IPCU          | Inter-processor communication unit        |
| IRC           | Interrupt controller                      |
| IRQ           | Interrupt request                         |
| ISR           | Interrupt service routine                 |
| JTAG          | Joint test action group                   |

| Acronym   | Description                                       |
|-----------|---------------------------------------------------|
| LLPP      | Low latency peripheral port                       |
| LVD       | Low voltage detector                              |
| MCU       | Microcontroller unit                              |
| MFS       | Multi-function serial interface                   |
| NF        | Noise filter                                      |
| NMI       | Non maskable interrupt                            |
| OCU       | Output compare unit                               |
| OSC       | Oscillator                                        |
| PCM       | Pulse coded module                                |
| PLL       | Phase locked loop                                 |
| PONR      | Power on reset                                    |
| PPC       | Port pin configuration                            |
| PSS       | Power saving state                                |
| PWM       | Pulse width modulation                            |
| RAM       | Random access memory                              |
| RIC       | Resource input configuration                      |
| ROM       | Read only memory                                  |
| RTC       | Real time clock                                   |
| RVD       | Low voltage detection and reset for RAM retention |
| SCT       | Source clock timer                                |
| SEC       | Single error correction                           |
| SECDED    | Single error correction and dual error detection  |
| SHE       | Secure Hardware Extension                         |
| SMC       | Stepper motor controller                          |
| SMIX      | Sound mixer                                       |
| SRAM      | Static RAM                                        |
| SWFG      | Sound waveform generator                          |
| SW-WDT    | Software watchdog timer                           |
| SYSC      | System controller                                 |
| TCFLASH   | FLASH connected to TCM                            |
| TCM       | Tightly coupled memory                            |
| TCRAM     | RAM connected to TCM                              |
| TPU       | Timing protection unit                            |
| UDC       | Up-down counter                                   |
| VIC       | Vectored interrupt controller                     |
| VRAM      | Video RAM                                         |
| WDR       | Watchdog description record                       |
| WDT       | Watchdog timer                                    |
| WFG       | Waveform generator                                |
| WorkFLASH | Work FLASH memory                                 |

## 11. Ordering Information

| Part Number       | Package                                |
|-------------------|----------------------------------------|
| S6J331EKSESE20000 | 208-pin plastic TEQFP (LEW208)         |
| S6J332CKSDSE20000 | 208-pin plastic TEQFP (LEW208)         |
| S6J334CKSESE20000 | 208-pin plastic TEQFP (LEW208)         |
| S6J331EJSESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J332EJBDSE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J332EJTDSE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J332EJBESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J332EJTESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J332DJEESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334BJDDSE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334EJBESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334EJTESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334EJEESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334DJTESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334DJEESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334CJBESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334CJEESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334BJDESE20000 | 176-pin plastic TEQFP (LEV176)         |
| S6J334EJTCSE2000A | 176-pin plastic TEQFP (LEV176)         |
| S6J334EJEDSE2000A | 176-pin plastic TEQFP (LEV176)         |
| S6J332EHBESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) |
| S6J334EHHESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) |
| S6J334DHEESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) |
| S6J334DHFSE20000  | 144-pin plastic TEQFP (LEX144, LEK144) |
| S6J334CHEESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) |
| S6J334CHFSE20000  | 144-pin plastic TEQFP (LEX144, LEK144) |

## 12. Errata

This section describes the errata for the S6J3310/3320/3330/3340 Series. Details include errata trigger conditions, scope of impact, available workarounds, and silicon revision applicability. Contact your local Cypress Sales Representative if you have questions.

### Part Numbers Affected

| Part Number |
|-------------|
| S6J331xxxx  |
| S6J332xxxx  |
| S6J333xxxx  |
| S6J334xxxx  |

### S6J331/2/3/4 Qualification Status

Product Status: Production

### Errata Summary

The following table defines the errata applicability to available S6J3310/3320/3330/3340 Series devices.

| Items                           | Part Number                                          | Fix Status      |
|---------------------------------|------------------------------------------------------|-----------------|
| MCAN wrong message transmission | S6J331xxxx<br>S6J332xxxx<br>S6J333xxxx<br>S6J334xxxx | Not be planned. |

#### 1. MCAN wrong message transmission

##### ■ Problem Definition

There is a possibility a message with an ID (arbitration field) and a format and DLC (control field) is transmitted which was not configured by the application. The message itself is syntactically correct and can be received by other nodes.

The occurrence of the limitation requires a certain relationship in time between a transmission request for sending a message and the coincidence of noise in the 3rd bit of intermission field which is treated as the start of new message transmission (SoF).

##### ■ Trigger Condition

Under the following conditions a message with wrong ID, format and DLC is transmitted:

- M\_CAN is in state "Receiver" (PSR.ACT = "10"), no pending transmission.
- A new transmission is requested after sample point of 2nd bit of intermission but before the 3rd bit of Intermission is reached.
- The CAN bus is sampled dominant at the third bit of Intermission which is treated as SoF (see ISO11898-1:2015 Section 10.4.2.2).

##### ■ Scope of Impact

Under the conditions listed above it may happen, that:

- The shift register is not loaded with ID, format, and DLC of the requested message.
- The M\_CAN will start arbitration with wrong ID, format, and DLC.

- In case the ID won arbitration, a CAN message with valid CRC is transmitted.
- In case this message is acknowledged, the ID stored in the Tx Event FIFO is the ID of the requested Tx message and not the ID of the message transmitted on the CAN bus
- Neither an error is detected by the transmitting node nor at the receiving node.

## ■ Workaround

### Workaround 1:

This workaround avoids submitting a transmission request in the critical time window of about one bit time before the sample point of the 3<sup>rd</sup> bit of intermission field when on other pending transmission request exists:

- Request a new transmission if another transmission is already pending or when the M\_CAN / M\_TTCAN is not in state "Receiver" (when PSR.ACT ≠ "10").
- If no pending transmission request exists, the application software needs to evaluate the Rx Interrupt flags IR.DRX, IR.RF0N, IR.RF1N which are set at the last bit of EoF when a received and accepted message gets valid.
- A new transmission may be requested by writing to TXBAR once the Rx interrupt occurred and the application waited another 3 bit times before submitting its Tx request. Note the Rx interrupt is generated at the last bit of EoF which is followed by three bits of Intermission.
- The application has to take care that the transmission request for the CAN Protocol Controller is activated before the critical window of the following reception is reached.

A supplemental action can be applied in order to detect messages which contain wrong ID and control filed information:

- A checksum covering arbitration and control fields can be added to the data field of the message to be transmitted, to detect frames transmitted with wrong arbitration and control fields.

### Workaround 2:

This workaround ensures that always at least one pending Tx request exists. If that is the case, the application may launch its Tx requests at any time without suffering from the limitation.

- Define a low priority message with DLC = 0 that can be sent without harm. E.g. loses arbitration against all other application messages, does not pass any acceptance filter of nodes in the same network. DLC = 0 shall reduce latency for other application messages.
- Configure sufficient Tx buffers – at least two - for this message type thus that there is always another one waiting to be sent. E.g. an application that cannot react quickly enough with the time a single message of this type is sent, more than 2 Tx buffer may become necessary.
- The application uses the standard interfaces of the CAN / CAN FD stack to feed these messages.
- Whenever Tx confirmation is indicated for the second but last message of this type with pending Tx request, the application needs to submit at least one new Tx request. Note Tx confirmation is a standard feature in the AUTOSAR SW architecture.
- Before initially leaving INIT state of the M\_CAN IP by clearing CCCR.INIT bit, make sure to activate a Tx request after having cleared CCCR.CCE. This will ensure that the conditions for the occurrence of the limitation when synchronizing to the CAN bus the first time after RESET are prevented.

## ■ Fix Status

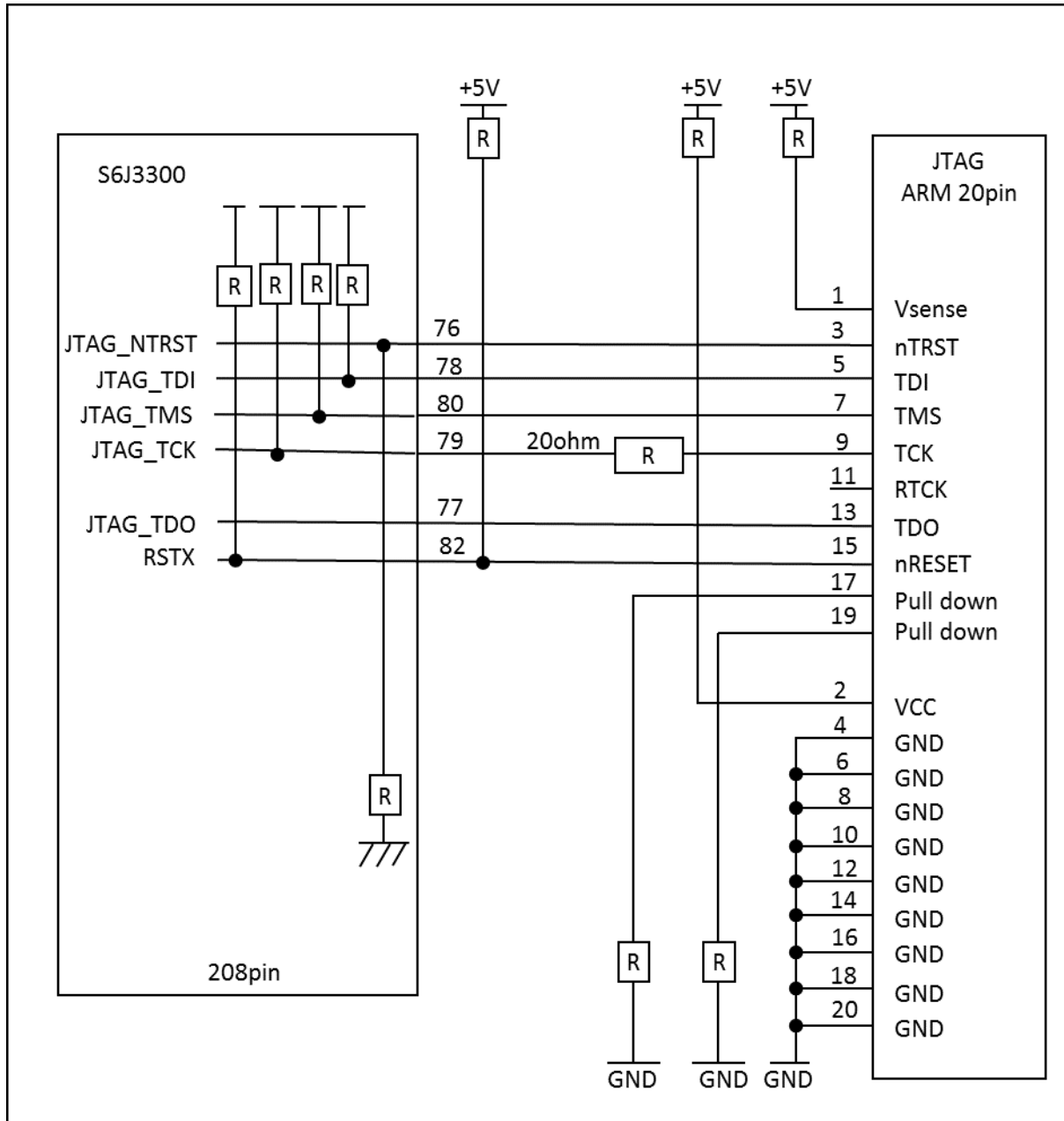
Not be planned.



## 13. Appendix

### 13.1 Application 1: JTAG Tool Connection

This is an application example of JTAG tool connection. See the relevant application note 002-03898 in detail.



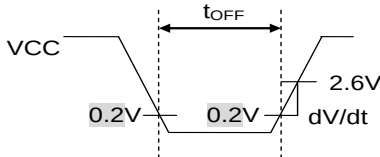
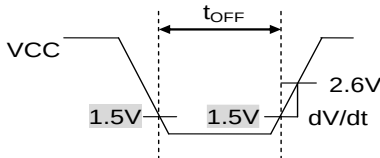
## 14. Major Changes

| Page           | Section                                                | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
|----------------|--------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|---------|---------|----------|------------|---------|----------|------------|---------|----------|------------|----------------|----------|---------|---------|----------|------------|---------|----------|------------|---------|----------|------------|
| Rev. *A        |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| 7              | 2.Function List<br>2.2Optional<br>function             | <p>Revised CHIP-ID and Revision as below:</p> <p>Error)</p> <table> <tr> <td>Function Digit</td><td>Revision</td><td>Chip ID</td></tr> <tr> <td>S,U,T,V</td><td><b>B</b></td><td>0x10120000</td></tr> <tr> <td>A,C,E,G</td><td><b>B</b></td><td>0x1012A000</td></tr> <tr> <td>B,D,F,H</td><td><b>B</b></td><td>0x10122000</td></tr> </table> <p>Correct)</p> <table> <tr> <td>Function Digit</td><td>Revision</td><td>Chip ID</td></tr> <tr> <td>S,U,T,V</td><td><b>C</b></td><td>0x10122100</td></tr> <tr> <td>A,C,E,G</td><td><b>C</b></td><td>0x10128100</td></tr> <tr> <td>B,D,F,H</td><td><b>C</b></td><td>0x10120100</td></tr> </table> | Function Digit | Revision | Chip ID | S,U,T,V | <b>B</b> | 0x10120000 | A,C,E,G | <b>B</b> | 0x1012A000 | B,D,F,H | <b>B</b> | 0x10122000 | Function Digit | Revision | Chip ID | S,U,T,V | <b>C</b> | 0x10122100 | A,C,E,G | <b>C</b> | 0x10128100 | B,D,F,H | <b>C</b> | 0x10120100 |
| Function Digit | Revision                                               | Chip ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| S,U,T,V        | <b>B</b>                                               | 0x10120000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| A,C,E,G        | <b>B</b>                                               | 0x1012A000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| B,D,F,H        | <b>B</b>                                               | 0x10122000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| Function Digit | Revision                                               | Chip ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| S,U,T,V        | <b>C</b>                                               | 0x10122100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| A,C,E,G        | <b>C</b>                                               | 0x10128100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| B,D,F,H        | <b>C</b>                                               | 0x10120100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| 8              | 2.Function List<br>2.2Optional<br>function             | <p>Revised as below:</p> <p>Error)</p> <p>TEQFP144</p> <p>Analog input port(12bit-ADC)</p> <p>AN4~7, AN10~11, AN14~15, AN19~20, AN22~23, AN25~30, AN33~38, AN48</p> <p>Correct)</p> <p>TEQFP144</p> <p>Analog input port(12bit-ADC)</p> <p>AN4~7, AN10~11, AN14~15, AN25~26, AN28~30</p>                                                                                                                                                                                                                                                                                                                                                      |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| 10             | 3.Product<br>Description<br>3.2Product<br>description  | <p>Revised 4MHz to 16MHz as below:</p> <p>Error)</p> <p>-A wide range of 3.6 - 4MHz is available for main oscillator</p> <p>Correct)</p> <p>-A wide range of 3.6 - 16MHz is available for main oscillator</p>                                                                                                                                                                                                                                                                                                                                                                                                                                 |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| 13             | 3. Product<br>Description<br>3.2Product<br>description | <p>Added Note of a function as below:</p> <p>Multi-Functional Serial (MFS)</p> <p>Correct)</p> <p>CTS/RTS is not mounted (hardware flow control is not supported for this series.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |
| 14             | 3. Product<br>Description<br>3.2Product<br>description | <p>Revised Graphics Subsystem clock frequency as below:</p> <p>Error)</p> <p>200 MHz maximum clock frequency</p> <p>Video modes up to 50 MHz pixel clock</p> <p>Correct)</p> <p>80 MHz maximum clock frequency</p> <p>Video modes up to 25 MHz pixel clock</p>                                                                                                                                                                                                                                                                                                                                                                                |                |          |         |         |          |            |         |          |            |         |          |            |                |          |         |         |          |            |         |          |            |         |          |            |

| Page | Section                                                                     | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 81   | 7. Port Configuration<br>7.1 Resource Input Configuration Module            | <p>Revised as below:<br/>Error)<br/>RIC_RESIN235(0x01D6)<br/>OCU1_CK0, OCU1_CK1, OCU1_DOWNB0, OCU1_DOWNB1, OCU1_FCMD0, OCU1_FCMD1, OCU1_MTSF0, OCU1_MTSF1, OCU1_T0[31:0], OCU1_T1[31:0]<br/>RIC_RESIN236(0x01D8)<br/>OCU1_ZTSF0, OCU1_ZTSF1, OCU1_MOD0</p> <p>Correct)<br/>RIC_RESIN235(0x01D6)<br/>OCU1_CK0, OCU1_CK1, OCU1_DOWNB0, OCU1_DOWNB1, OCU1_FCMD0, OCU1_FCMD1, OCU1_MTSF0, OCU1_MTSF1, OCU1_T0[31:0], OCU1_T1[31:0], OCU1_ZTSF0, OCU1_ZTSF1<br/>RIC_RESIN236(0x01D8)<br/>OCU1_MOD0</p>                                                                                                                                                                                                                                                  |
| 155  | 8.Precautions and Handling Devices<br>8.1.1Precautions for Product Design   | <p>Revised as below:<br/>Error)<br/>(1) Preventing Over-Voltage and Over-Current Conditions<br/>Exposure to voltage or current levels in excess of maximum ratings at any pin is likely to cause deterioration within the device, and in extreme cases leads to permanent damage of the device. Try to prevent such overvoltage or over-current conditions at the design stage.</p> <p>Correct)<br/>(1) Preventing Over-Voltage and Over-Current Conditions<br/>Exposure to voltage or current levels in excess of maximum ratings at any pin is likely to cause deterioration within the device and in extreme cases leads to permanent damage of the device. Try to prevent such overvoltage or over-current conditions at the design stage.</p> |
| 156  | 8.Precautions and Handling Devices<br>8.1.2Precautions for Package Mounting | <p>Revised as below:<br/>Error)<br/>Surface Mount Type</p> <p>Correct)<br/><b>Surface Mount Type</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 159  | 9.Electric Characteristics<br>9.1.1 Absolute Maximum Rating                 | <p>Deleted Remarks comment as below:<br/>Error)<br/>Supply voltage<br/>Operation assurance range, DV<sub>CC</sub>, Remarks "DV<sub>CC</sub>≤V<sub>CC5</sub>"</p> <p>Correct)<br/>Power supply voltage, DV<sub>CC</sub>, Remarks ""</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 159  | 8.2Handling Devices                                                         | <p>Added Note of a function as below:<br/>Method to Switch off VCC12 during Power-off Sequence<br/>During power-off sequence, it is necessary to switch off VCC12 by driving PSC1 pin low by entering PSS mode (power domain 2 off). If VCC12 needs to be switched off by other means, RSTX needs to be asserted before switching off VCC12 to inactivate the operation of VCC12 supplied domain below the operation assurance range.</p>                                                                                                                                                                                                                                                                                                          |

| Page                     | Section                                                                                                                                                            | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 159<br>160               | 9.Electric<br>Characteristics<br>9.1.1 Absolute<br>Maximum<br>Rating                                                                                               | <p>Added Note of a comment as below:<br/>Maximum clamp current, Total maximum clamp current</p> <p>Correct)</p> <p>*13 VI or VO should never exceed the specified ratings. However, if the maximum current to/from an input is limited by a suitable external resistor, the ICLAMP rating supersedes the VI rating.</p>                                                                                                                                                                                                                             |
| 161                      | 9.Electric<br>Characteristics<br>9.1.1 Absolute<br>Maximum<br>Rating                                                                                               | <p>Revised Warning of a comment as below:<br/>Error)</p> <p>Note:</p> <p>- Application of stress (e.g., voltage, current, temperature) exceeding the absolute maximum rating may cause damage to the semiconductor device. Therefore, make sure that nothing exceeds the rating.</p> <p>Correct)</p> <p>WARNING:</p> <p>- Semiconductor devices may be permanently damaged by application of stress (including, without limitation, voltage, current or temperature) in excess of absolute maximum ratings. Do not exceed any of these ratings.</p> |
| 162                      | 9.Electric<br>Characteristics<br>9.1.2Recommended operating<br>condition                                                                                           | <p>Revised Rating Min Spec as below:<br/>Error)</p> <p>Power supply voltage, <math>V_{CC5}</math>, Rating, Min, 2.6</p> <p>Power supply voltage, <math>V_{CC3}</math>, Rating, Min, 2.6</p> <p>Correct)</p> <p>Power supply voltage, <math>V_{CC5}</math>, Rating, Min, 2.7</p> <p>Power supply voltage, <math>V_{CC3}</math>, Rating, Min, 2.7</p>                                                                                                                                                                                                 |
| 162<br>163               | 9.Electric<br>Characteristics<br>9.1.2Recommended operating<br>condition                                                                                           | <p>Added comment as below:<br/>Supply voltage Operation assurance range, VCC12, VCC12</p> <p>Correct)</p> <p>*5:When the voltage of Vcc12 is in the out of range against supply voltage operation assurance, the operation of circuit which Vcc12 used as the power source becomes unstable status. In that case, the value of each registers including RESCAUSEUR Register cannot be guaranteed, so these flags should don't care by software processing</p>                                                                                       |
| 162<br>163<br>215<br>236 | 9.Electric<br>Characteristics<br>9.1.2Recommended operating<br>condition<br>9.1.4.11Low<br>Voltage<br>Detection<br>(External<br>Voltage)<br>9.1.5 A/D<br>converter | <p>Revised device revision from B to C as below:<br/>Error)</p> <p>S6J33xxxSB, S6J33xxxUB, S6J33xxxTB, S6J33xxxVB,<br/>S6J33xxxBB, S6J33xxxDB, S6J33xxxFB, S6J33xxxHB,<br/>S6J33xxxAB, S6J33xxxCB, S6J33xxxEB, S6J33xxxGB</p> <p>Correct)</p> <p>S6J33xxxSC, S6J33xxxUC, S6J33xxxTC, S6J33xxxVC,<br/>S6J33xxxBC, S6J33xxxDC, S6J33xxxFC, S6J33xxxHC,<br/>S6J33xxxAC, S6J33xxxCC, S6J33xxxEC, S6J33xxxGC</p>                                                                                                                                         |

| Page                                                        | Section                                                                                                  | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                |        |          |            |            |         |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|--------|----------|------------|------------|---------|--|------|---------|------|---------|-----|----------------|---|------|---|----|---|---|----|----|-----------------|-------|------|-----------------------|---|---|---|------|----|----------------------------|-------|------|--------------------------------|---|---|----|-------|----|-----------|--------|----------|------------|-------|--|--|------|---------|-----|-----|-----|----------------|---|------|---|-----|---|---|----|----|-----------------|-------|------|-----------------------|---|---|---|------|----|-------------------------------------------------------------|-------|------|--------------------------------|---|---|----|-------|----|
| 167                                                         | 9.Electric Characteristics<br>9.1.3 DC characteristics                                                   | Deleted VOH25 Spec as below:<br><br>Error)<br>VOH25<br><br>Correct)<br>Non                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |        |          |            |            |         |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| 169                                                         | 9.Electric Characteristics<br>9.1.3 DC characteristics                                                   | Deleted VOL25 Spec as below:<br><br>Error)<br>VOL25<br><br>Correct)<br>Non                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                |        |          |            |            |         |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| 175                                                         | 9.1 Electrical Characteristics<br>9.1.4 AC characteristics<br>9.1.4.3<br>Internal clock timing (S6J3310) | Revised as below:<br><br>Error)<br>Internal clock frequency, F <sub>CLK_HAPP1B0</sub> , Value, Max *1, 60MHz<br><br>Correct)<br>Internal clock frequency, F <sub>CLK_HAPP1B0</sub> , Value, Max *1, 80MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                |        |          |            |            |         |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| 180                                                         | 9.Electric Characteristics<br>9.1.4.5 Power-on Conditions                                                | Revised as below:<br><br>Error)<br><table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Power off time</td><td>-</td><td>VCC5</td><td>-</td><td>50</td><td>-</td><td>-</td><td>ms</td><td>*2</td></tr><tr><td>Power ramp rate</td><td>dV/dt</td><td>VCC5</td><td>VCC5:<br/>0.2V to 2.6V</td><td>-</td><td>-</td><td>1</td><td>V/μs</td><td>*3</td></tr><tr><td>Undetected power ramp rate</td><td> dV/dt </td><td>VCC5</td><td>VCC5:<br/>Between 2.4V and 4.5V</td><td>-</td><td>-</td><td>50</td><td>mV/μs</td><td>*4</td></tr></table><br><br>Correct)<br><table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Power off time</td><td>-</td><td>VCC5</td><td>-</td><td>100</td><td>-</td><td>-</td><td>μs</td><td>*2</td></tr><tr><td>Power ramp rate</td><td>dV/dt</td><td>VCC5</td><td>VCC5:<br/>1.5V to 2.6V</td><td>-</td><td>-</td><td>1</td><td>V/μs</td><td>*3</td></tr><tr><td>Maximum ramp rate guaranteed to not generate power-on reset</td><td> dV/dt </td><td>VCC5</td><td>VCC5:<br/>Between 2.4V and 4.5V</td><td>-</td><td>-</td><td>50</td><td>mV/μs</td><td>*4</td></tr></table> | Parameter                      | Symbol | Pin Name | Conditions | Value      |         |  | Unit | Remarks | Min  | Typ     | Max | Power off time | - | VCC5 | - | 50 | - | - | ms | *2 | Power ramp rate | dV/dt | VCC5 | VCC5:<br>0.2V to 2.6V | - | - | 1 | V/μs | *3 | Undetected power ramp rate | dV/dt | VCC5 | VCC5:<br>Between 2.4V and 4.5V | - | - | 50 | mV/μs | *4 | Parameter | Symbol | Pin Name | Conditions | Value |  |  | Unit | Remarks | Min | Typ | Max | Power off time | - | VCC5 | - | 100 | - | - | μs | *2 | Power ramp rate | dV/dt | VCC5 | VCC5:<br>1.5V to 2.6V | - | - | 1 | V/μs | *3 | Maximum ramp rate guaranteed to not generate power-on reset | dV/dt | VCC5 | VCC5:<br>Between 2.4V and 4.5V | - | - | 50 | mV/μs | *4 |
| Parameter                                                   | Symbol                                                                                                   | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                |        |          |            | Conditions | Value   |  |      |         | Unit | Remarks |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
|                                                             |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Min                            | Typ    | Max      |            |            |         |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Power off time                                              | -                                                                                                        | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -                              | 50     | -        | -          | ms         | *2      |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Power ramp rate                                             | dV/dt                                                                                                    | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | VCC5:<br>0.2V to 2.6V          | -      | -        | 1          | V/μs       | *3      |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Undetected power ramp rate                                  | dV/dt                                                                                                    | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | VCC5:<br>Between 2.4V and 4.5V | -      | -        | 50         | mV/μs      | *4      |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Parameter                                                   | Symbol                                                                                                   | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Conditions                     | Value  |          |            | Unit       | Remarks |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
|                                                             |                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                | Min    | Typ      | Max        |            |         |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Power off time                                              | -                                                                                                        | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | -                              | 100    | -        | -          | μs         | *2      |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Power ramp rate                                             | dV/dt                                                                                                    | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | VCC5:<br>1.5V to 2.6V          | -      | -        | 1          | V/μs       | *3      |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |
| Maximum ramp rate guaranteed to not generate power-on reset | dV/dt                                                                                                    | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | VCC5:<br>Between 2.4V and 4.5V | -      | -        | 50         | mV/μs      | *4      |  |      |         |      |         |     |                |   |      |   |    |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                            |       |      |                                |   |   |    |       |    |           |        |          |            |       |  |  |      |         |     |     |     |                |   |      |   |     |   |   |    |    |                 |       |      |                       |   |   |   |      |    |                                                             |       |      |                                |   |   |    |       |    |

| Page | Section                                                   | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------|-----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 180  | 9.Electric Characteristics<br>9.1.4.5 Power-on Conditions | <p>Revised device revision as below:<br/>Error)</p> <p>*1: This specification is at 1V/μs of power ramp rate.<br/>*2: VCC5 must be held below 0.2V for a minimum period of t<sub>OFF</sub>.<br/>*3: Power ramp rate must be 1V/μs or less from 0.2V to 2.6V.<br/>Power-on can detect by satisfying power ramp rate when power off time is satisfied.<br/>*4: This specification is specified the power supply fluctuation after power on detection. When VCC5 voltage is between 2.4V and 4.5V, the power supply fluctuation is below 50mV/μs, the detection of power-on is suppressed. The power-on does not detect in any power fluctuation between 4.5V and 5.5V.</p> <p><b>Notes:</b><br/>When using S6J3310/20/30/40, *2 and *3 must be satisfied. When neither *2 nor *3 can be satisfied, assert external reset (RSTX) at power up and any brownout event.</p> <div> <p>• Power off time, Power ramp rate</p>  </div> <p>Correct)</p> <p>*1: This specification is at 1V/μs of power ramp rate.<br/>*2: VCC5 must be held below 1.5V for a minimum period of t<sub>OFF</sub>.<br/>*3: Power ramp rate must be 1V/μs or less from 1.5V to 2.6V.<br/>Power-on can detect by satisfying power ramp rate when power off time is satisfied.<br/>*4: This specification is specified the power supply fluctuation after power on detection. When VCC5 voltage is between 2.4V and 4.5V, the power supply fluctuation is below 50mV/μs, the detection of power-on is suppressed. The power-on does not detect in any power fluctuation between 4.5V and 5.5V.</p> <p><b>Notes:</b><br/>When using S6J3310/20/30/40, *2 and *3 must be satisfied. When neither *2 nor *3 can be satisfied, assert external reset (RSTX) at power up and any brownout event.</p> <div> <p>• Power off time, Power ramp rate</p>  </div> |

| Page                               | Section                                                                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                            |        |          |            |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
|------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------|----------|------------|------------|---------------------------------------------|----|------|---------|----------------------------|---------|-----|------------------------------------|--------|-------|----|-------|--------|-------|----|---------------------------------------------|-----------|--------|----------|------------|--------|----------|------------|-------|---------|-----|------|---------|------------------|-------|-----|------------------------------------|--------|-------|----|--------|---------------------------------|--------|---|---------------------------------------------|
| 185<br>186                         | 9.Electric Characteristics<br>9.1.4.6Multi-Function Serial                      | <p>Deleted Remarks comment as below:<br/>(2) Normal synchronous transfer (SCR:SPI=0) and mark level "L" of serial clock output (SMR:SCINV=1) Error)</p> <p>Master Mode(CL=20pF, IOL=-5mA, IOH=5mA)<br/>Master Mode(CL=20pF, IOL=-10mA, IOH=10mA)<br/>@20MHz, @16MHz, 12.5MHz</p> <p>Correct)<br/>Non</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                            |        |          |            |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| 215                                | 9.Electric Characteristics<br>9.1.4.11 Low Voltage Detection (External Voltage) | <p>Revised Max of Low-voltage detection time as below:<br/>Low-voltage detection (external low-voltage detection) Error)</p> <table><tr><td>Low-voltage detection time</td><td>Td</td><td>-</td><td>-</td><td>-</td><td>-</td><td>30</td><td>μs</td><td></td></tr></table> <p>Correct)</p> <table><tr><td>Low-voltage detection time</td><td>Td</td><td>-</td><td>-</td><td>-</td><td>-</td><td>40</td><td>μs</td><td></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Low-voltage detection time | Td     | -        | -          | -          | -                                           | 30 | μs   |         | Low-voltage detection time | Td      | -   | -                                  | -      | -     | 40 | μs    |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Low-voltage detection time         | Td                                                                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -                          | -      | -        | 30         | μs         |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Low-voltage detection time         | Td                                                                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -                          | -      | -        | 40         | μs         |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| 216                                | 9.Electric Characteristics<br>9.1.4.11 Low Voltage Detection (External Voltage) | <p>Revised as below:<br/>Low-voltage detection (1.15 V power supply low-voltage detection) Error)</p> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td rowspan="2">Detection voltage (after trimming)</td><td rowspan="2">VRDLAT</td><td rowspan="2">VCC12</td><td rowspan="2">*1</td><td>0.784</td><td>0.8125</td><td>0.841</td><td rowspan="2">V</td><td rowspan="2">When power-supply voltage falls<br/>Typ±3.5%</td></tr><tr><td>0.888</td><td>0.95</td><td>0.984</td></tr></table> <p>Correct)</p> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Detection voltage (after trimming)</td><td>VRDLAT</td><td>VCC12</td><td>*1</td><td>0.7841</td><td>0.8125</td><td>0.8410</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5%</td></tr></table> | Parameter                  | Symbol | Pin Name | Conditions | Value      |                                             |    | Unit | Remarks | Min                        | Typ     | Max | Detection voltage (after trimming) | VRDLAT | VCC12 | *1 | 0.784 | 0.8125 | 0.841 | V  | When power-supply voltage falls<br>Typ±3.5% | 0.888     | 0.95   | 0.984    | Parameter  | Symbol | Pin Name | Conditions | Value |         |     | Unit | Remarks | Min              | Typ   | Max | Detection voltage (after trimming) | VRDLAT | VCC12 | *1 | 0.7841 | 0.8125                          | 0.8410 | V | When power-supply voltage falls<br>Typ±3.5% |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                            |        |          |            | Conditions | Value                                       |    |      |         | Unit                       | Remarks |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Min                        | Typ    | Max      |            |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Detection voltage (after trimming) | VRDLAT                                                                          | VCC12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | *1                         | 0.784  | 0.8125   | 0.841      | V          | When power-supply voltage falls<br>Typ±3.5% |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            | 0.888  | 0.95     | 0.984      |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Conditions                 | Value  |          |            | Unit       | Remarks                                     |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            | Min    | Typ      | Max        |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Detection voltage (after trimming) | VRDLAT                                                                          | VCC12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | *1                         | 0.7841 | 0.8125   | 0.8410     | V          | When power-supply voltage falls<br>Typ±3.5% |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| 217                                | 9.Electric Characteristics<br>9.1.4.12Low Voltage Detection (Internal Voltage)  | <p>Revised as below:<br/>Low-voltage detection (internal low-voltage detection for LVDL0) Error)</p> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Hysteresis width</td><td>VRHYS</td><td>-</td><td>-</td><td>-</td><td>100</td><td>-</td><td>mV</td><td>When power-supply voltage rises</td></tr></table> <p>Correct)</p> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Hysteresis width</td><td>VRHYS</td><td>-</td><td>-</td><td>-</td><td>75</td><td>-</td><td>mV</td><td>When power-supply voltage rises</td></tr></table>                                                                                                                                                                                                                             | Parameter                  | Symbol | Pin Name | Conditions | Value      |                                             |    | Unit | Remarks | Min                        | Typ     | Max | Hysteresis width                   | VRHYS  | -     | -  | -     | 100    | -     | mV | When power-supply voltage rises             | Parameter | Symbol | Pin Name | Conditions | Value  |          |            | Unit  | Remarks | Min | Typ  | Max     | Hysteresis width | VRHYS | -   | -                                  | -      | 75    | -  | mV     | When power-supply voltage rises |        |   |                                             |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                            |        |          |            | Conditions | Value                                       |    |      |         | Unit                       | Remarks |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Min                        | Typ    | Max      |            |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Hysteresis width                   | VRHYS                                                                           | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -                          | -      | 100      | -          | mV         | When power-supply voltage rises             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Conditions                 | Value  |          |            | Unit       | Remarks                                     |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                            | Min    | Typ      | Max        |            |                                             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |
| Hysteresis width                   | VRHYS                                                                           | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | -                          | -      | 75       | -          | mV         | When power-supply voltage rises             |    |      |         |                            |         |     |                                    |        |       |    |       |        |       |    |                                             |           |        |          |            |        |          |            |       |         |     |      |         |                  |       |     |                                    |        |       |    |        |                                 |        |   |                                             |

| Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Section                                                                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------------|----------|--------------|--------------|------------------------------------|--------------|---------------------------------|---------|-------|----------------------|-------------------|----------------------|-------------------|------|---|------|---|------|-------------------|------------------|-------------------|------------------|------|------|------|------|------------------------------------|------------------|---------------------------------|------------------|-------------------|---|----|---|----|---------------------------------|----------------------------|---------------------------------|----------------------------|-----|---|---|----|----|----|----|--|
| 218                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 9.Electric Characteristics<br>9.1.4.12 Low Voltage Detection (Internal Voltage) | Revised as below:<br>Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Sym bol</th><th rowspan="2">Pin Name</th><th rowspan="2">Condi ti ons</th><th colspan="3">Value</th><th rowspan="2">Uni t</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Supply voltage range</td><td>V<sub>RDP5</sub></td><td>-</td><td>-</td><td>1.05</td><td>-</td><td>1.21</td><td>V</td><td></td></tr><tr><td>Detection voltage</td><td>V<sub>RDL</sub></td><td>-</td><td>*1</td><td>0.75</td><td>0.85</td><td>0.95</td><td>V</td><td>When power-supply voltage falls</td></tr><tr><td>Hysteresis width</td><td>V<sub>RHYS</sub></td><td>-</td><td>-</td><td>-</td><td>75</td><td>-</td><td>mV</td><td>When power-supply voltage rises</td></tr><tr><td>Low-voltage detection time</td><td>TRd</td><td>-</td><td>-</td><td>-</td><td>-</td><td>30</td><td>μs</td><td></td></tr></table> | Parameter         | Sym bol      | Pin Name | Condi ti ons | Value        |                                    |              | Uni t                           | Remarks | Min   | Typ                  | Max               | Supply voltage range | V <sub>RDP5</sub> | -    | - | 1.05 | - | 1.21 | V                 |                  | Detection voltage | V <sub>RDL</sub> | -    | *1   | 0.75 | 0.85 | 0.95                               | V                | When power-supply voltage falls | Hysteresis width | V <sub>RHYS</sub> | - | -  | - | 75 | -                               | mV                         | When power-supply voltage rises | Low-voltage detection time | TRd | - | - | -  | -  | 30 | μs |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |              |          |              | Sym bol      | Pin Name                           | Condi ti ons |                                 |         | Value |                      |                   | Uni t                | Remarks           |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Min               | Typ          | Max      |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | V <sub>RDP5</sub> | -            | -        | 1.05         | -            | 1.21                               | V            |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | Detection voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | V <sub>RDL</sub>  | -            | *1       | 0.75         | 0.85         | 0.95                               | V            | When power-supply voltage falls |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | Hysteresis width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | V <sub>RHYS</sub> | -            | -        | -            | 75           | -                                  | mV           | When power-supply voltage rises |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | Low-voltage detection time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | TRd               | -            | -        | -            | -            | 30                                 | μs           |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | *1: If the power fluctuation time is less than the low-voltage detection time (TRd) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                 | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Sym bol</th><th rowspan="2">Pin Name</th><th rowspan="2">Condi ti ons</th><th colspan="3">Value</th><th rowspan="2">Uni t</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Supply voltage range</td><td>V<sub>RDP5</sub></td><td>-</td><td>-</td><td>1.05</td><td>-</td><td>1.21</td><td>V</td><td></td></tr><tr><td>Detection voltage</td><td>V<sub>RDL</sub></td><td>-</td><td>*1</td><td>0.75</td><td>0.85</td><td>0.95</td><td>V</td><td>When power-supply voltage falls *2</td></tr><tr><td>Hysteresis width</td><td>V<sub>RHYS</sub></td><td>-</td><td>-</td><td>-</td><td>75</td><td>-</td><td>mV</td><td>When power-supply voltage rises</td></tr><tr><td>Low-voltage detection time</td><td>TRd</td><td>-</td><td>-</td><td>-</td><td>-</td><td>30</td><td>μs</td><td>*3</td></tr></table> | Parameter                                                                       | Sym bol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Pin Name          | Condi ti ons | Value    |              |              | Uni t                              | Remarks      | Min                             | Typ     | Max   | Supply voltage range | V <sub>RDP5</sub> | -                    | -                 | 1.05 | - | 1.21 | V |      | Detection voltage | V <sub>RDL</sub> | -                 | *1               | 0.75 | 0.85 | 0.95 | V    | When power-supply voltage falls *2 | Hysteresis width | V <sub>RHYS</sub>               | -                | -                 | - | 75 | - | mV | When power-supply voltage rises | Low-voltage detection time | TRd                             | -                          | -   | - | - | 30 | μs | *3 |    |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |              | Sym bol  | Pin Name     | Condi ti ons |                                    |              | Value                           |         |       | Uni t                | Remarks           |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Min                                                                             | Typ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Max               |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | V <sub>RDP5</sub>                                                               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -                 | 1.05         | -        | 1.21         | V            |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| Detection voltage                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | V <sub>RDL</sub>                                                                | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | *1                | 0.75         | 0.85     | 0.95         | V            | When power-supply voltage falls *2 |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| Hysteresis width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | V <sub>RHYS</sub>                                                               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -                 | -            | 75       | -            | mV           | When power-supply voltage rises    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| Low-voltage detection time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | TRd                                                                             | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -                 | -            | -        | 30           | μs           | *3                                 |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| *1: If the power fluctuation time is less than the low-voltage detection time (TRd) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| *2: This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |
| *3: After the brown-out event where the voltage level dips below the detection threshold for less than this time, the detection may occur or be canceled.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |              |          |              |              |                                    |              |                                 |         |       |                      |                   |                      |                   |      |   |      |   |      |                   |                  |                   |                  |      |      |      |      |                                    |                  |                                 |                  |                   |   |    |   |    |                                 |                            |                                 |                            |     |   |   |    |    |    |    |  |



| Page                                                                                                                                                                                                                                                                                                                                                                                                                    | Section                                                                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------|----------|------------|------------|------------------------------------------------------|------------|---------------------------------------------|---------|-------|---------|-----|----------------------|-------------------|---|---|------|---|------|---|--|-------------------------------------|--------------------|---|----|-------|-------|-------|---|---------------------------------------|------------------------------------|--------------------|---|----|-------|-------|-------|---|------------------------------------------------------|------------------|-------------------|---|---|---|----|---|----|---------------------------------|----------------------------|-----|---|---|---|---|----|----|----|
| 218                                                                                                                                                                                                                                                                                                                                                                                                                     | 9.Electric Characteristics<br>9.1.4.12 Low Voltage Detection (Internal Voltage) | Revised as below: Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Supply voltage range</td><td>V<sub>RDP5</sub></td><td>-</td><td>-</td><td>1.05</td><td>-</td><td>1.21</td><td>V</td><td></td></tr><tr><td>Detection voltage (before trimming)</td><td>V<sub>RDLBT</sub></td><td>-</td><td>*1</td><td>0.775</td><td>0.875</td><td>0.975</td><td>V</td><td>When power-supply voltage falls</td></tr><tr><td>Detection voltage (after trimming)</td><td>V<sub>RDLAT</sub></td><td>-</td><td>*1</td><td>0.844</td><td>0.875</td><td>0.906</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5%</td></tr><tr><td>Hysteresis width</td><td>V<sub>RHYS</sub></td><td>-</td><td>-</td><td>-</td><td>75</td><td>-</td><td>mV</td><td>When power-supply voltage rises</td></tr><tr><td>Low-voltage detection time</td><td>TRd</td><td>-</td><td>-</td><td>-</td><td>-</td><td>30</td><td>μs</td><td></td></tr></table>                    | Parameter          | Symbol | Pin Name | Conditions | Value      |                                                      |            | Unit                                        | Remarks | Min   | Typ     | Max | Supply voltage range | V <sub>RDP5</sub> | - | - | 1.05 | - | 1.21 | V |  | Detection voltage (before trimming) | V <sub>RDLBT</sub> | - | *1 | 0.775 | 0.875 | 0.975 | V | When power-supply voltage falls       | Detection voltage (after trimming) | V <sub>RDLAT</sub> | - | *1 | 0.844 | 0.875 | 0.906 | V | When power-supply voltage falls<br>Typ±3.5%          | Hysteresis width | V <sub>RHYS</sub> | - | - | - | 75 | - | mV | When power-supply voltage rises | Low-voltage detection time | TRd | - | - | - | - | 30 | μs |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |        |          |            | Symbol     | Pin Name                                             | Conditions |                                             |         | Value |         |     | Unit                 | Remarks           |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Min                | Typ    | Max      |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | V <sub>RDP5</sub>  | -      | -        | 1.05       | -          | 1.21                                                 | V          |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Detection voltage (before trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | V <sub>RDLBT</sub> | -      | *1       | 0.775      | 0.875      | 0.975                                                | V          | When power-supply voltage falls             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | V <sub>RDLAT</sub> | -      | *1       | 0.844      | 0.875      | 0.906                                                | V          | When power-supply voltage falls<br>Typ±3.5% |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Hysteresis width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | V <sub>RHYS</sub>  | -      | -        | -          | 75         | -                                                    | mV         | When power-supply voltage rises             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Low-voltage detection time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | TRd                | -      | -        | -          | -          | 30                                                   | μs         |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | *1: If the power fluctuation time is less than the low-voltage detection time (TRd) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Supply voltage range</td><td>V<sub>RDP5</sub></td><td>-</td><td>-</td><td>1.05</td><td>-</td><td>1.21</td><td>V</td><td></td></tr><tr><td>Detection voltage (before trimming)</td><td>V<sub>RDLBT</sub></td><td>-</td><td>*1</td><td>0.775</td><td>0.875</td><td>0.975</td><td>V</td><td>When power-supply voltage falls<br/>*3</td></tr><tr><td>Detection voltage (after trimming)</td><td>V<sub>RDLAT</sub></td><td>-</td><td>*1</td><td>0.844</td><td>0.875</td><td>0.906</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5% *2<br/>*3</td></tr><tr><td>Hysteresis width</td><td>V<sub>RHYS</sub></td><td>-</td><td>-</td><td>-</td><td>75</td><td>-</td><td>mV</td><td>When power-supply voltage rises</td></tr><tr><td>Low-voltage detection time</td><td>TRd</td><td>-</td><td>-</td><td>-</td><td>-</td><td>30</td><td>μs</td><td>*4</td></tr></table> | Parameter          | Symbol | Pin Name | Conditions | Value      |                                                      |            | Unit                                        | Remarks | Min   | Typ     | Max | Supply voltage range | V <sub>RDP5</sub> | - | - | 1.05 | - | 1.21 | V |  | Detection voltage (before trimming) | V <sub>RDLBT</sub> | - | *1 | 0.775 | 0.875 | 0.975 | V | When power-supply voltage falls<br>*3 | Detection voltage (after trimming) | V <sub>RDLAT</sub> | - | *1 | 0.844 | 0.875 | 0.906 | V | When power-supply voltage falls<br>Typ±3.5% *2<br>*3 | Hysteresis width | V <sub>RHYS</sub> | - | - | - | 75 | - | mV | When power-supply voltage rises | Low-voltage detection time | TRd | - | - | - | - | 30 | μs | *4 |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                               | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                    |        |          |            | Conditions | Value                                                |            |                                             |         | Unit  | Remarks |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
|                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Min                | Typ    | Max      |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                    | V <sub>RDP5</sub>                                                               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                  | 1.05   | -        | 1.21       | V          |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| Detection voltage (before trimming)                                                                                                                                                                                                                                                                                                                                                                                     | V <sub>RDLBT</sub>                                                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | *1                 | 0.775  | 0.875    | 0.975      | V          | When power-supply voltage falls<br>*3                |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                      | V <sub>RDLAT</sub>                                                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | *1                 | 0.844  | 0.875    | 0.906      | V          | When power-supply voltage falls<br>Typ±3.5% *2<br>*3 |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| Hysteresis width                                                                                                                                                                                                                                                                                                                                                                                                        | V <sub>RHYS</sub>                                                               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                  | -      | 75       | -          | mV         | When power-supply voltage rises                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| Low-voltage detection time                                                                                                                                                                                                                                                                                                                                                                                              | TRd                                                                             | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                  | -      | -        | 30         | μs         | *4                                                   |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| *1: If the power fluctuation time is less than the low-voltage detection time (TRd) and has passed the detection voltage range, the detection may occur or be canceled after the supply voltage has passed the detection voltage range.                                                                                                                                                                                 |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| *2: This detection voltage level setting is below the minimum operation assurance voltage . Between this detection voltage and the minimum operation assurance voltage, MCU functions are not guaranteed except for the low voltage detector. Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level. |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| *3: This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage.                                                                                                                                                                                                          |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |
| *4: After the brown-out event where the voltage level dips below the detection threshold for less than this time, the detection may occur or be canceled.                                                                                                                                                                                                                                                               |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |        |          |            |            |                                                      |            |                                             |         |       |         |     |                      |                   |   |   |      |   |      |   |  |                                     |                    |   |    |       |       |       |   |                                       |                                    |                    |   |    |       |       |       |   |                                                      |                  |                   |   |   |   |    |   |    |                                 |                            |     |   |   |   |   |    |    |    |

| Page                             | Section                                                   | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|----------------------------------|-----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|---------------------------------------------|-------------------------|------|-------------------------|--|-----------|--------|----------|------------|-------|--|------|---------|-----|-----|-------------------|------------------|---------|-------------------------------------------------------------|----|---|----|------------------------|----------------------------------|--------------------|---|----|------------------|----------------------------------|--------------------|----------------------------------|--------------------|----------------------------|-----|---|--------------------|--------------------|----------------------------|----|---|----|--|------------------|--|----------------------------------|--------------------|----------------------------|-----|---|--------------------|--------------------|----------------------------|----|---|----|--|-----------------|--|--------------------|---------------------|----------------------------|---|-----|--------------------|-------------------------|----------------------------|---|-------------------------|----|--|-------------------|--|--------------------|---------------------|----------------------------|-----|---|--------------------|---------------------|----------------------------|-------------------------|---|----|--|------------------|--|-------------------|--------------------|------------|--|---|-------------------|--------------------|-------------------------|-------------------|---------------------------------------------|---|----|--|-------------------|--|--|-------------------|--------------------|------------|--|-------------------|--------------------|------------|--|----------------------|---|----|--|------------------|--|--|--|--|--|--|--|
| 219                              | 9.Electric Characteristics<br>9.1.4.14 Display Controller | Revised as below:<br>Error)<br>(13-1) Display controller0 Timing (TTL mode)<br><br>Correct)<br>(1) Display controller0 Timing (TTL mode)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| 224                              | 9.Electric Characteristics<br>9.1.4.16 DDR-HSSPI          | Revised as below:<br>Error)<br>(16-1) DDR-HSSPI Interface Timing (SDR mode)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>HSSPI clock cycle</td><td>t<sub>cyc</sub></td><td>M_SCLK0</td><td rowspan="9">(CL = 20pF, I<sub>OL</sub>=-10mA, I<sub>OH</sub>=10mA),</td><td>10</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; delayed sample clock↑</td><td>t<sub>spcnt</sub></td><td>-</td><td>0</td><td>t<sub>cyc</sub></td><td>ns</td><td></td></tr><tr><td>M_SDAT0 -&gt; delayed sample clock↑</td><td>t<sub>sdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>3.5</td><td>-</td><td>ns</td><td></td></tr><tr><td>Input setup time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>delayed sample clock↑ -&gt; M_SDAT0</td><td>t<sub>hdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>2.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>Input hold time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0</td><td>t<sub>oddata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>-</td><td>6.5</td><td>ns</td><td>t<sub>cyc</sub> -3.5ns</td></tr><tr><td>Output delay time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0</td><td>t<sub>ohdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>3.5</td><td>-</td><td>ns</td><td></td></tr><tr><td>Output hold time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL</td><td>t<sub>odsel</sub></td><td>M_SSEL0, 1</td><td></td><td>-</td><td>5.5</td><td>ns</td><td>t<sub>cyc</sub> -4.5ns</td></tr><tr><td>Output delay time</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL</td><td>t<sub>ohsel</sub></td><td>M_SSEL0, 1</td><td></td><td>4.5</td><td>-</td><td>ns</td><td></td></tr><tr><td>Output hold time</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>                                                                                                                    |                                                             |                                             |                         |      |                         |  | Parameter | Symbol | Pin Name | Conditions | Value |  | Unit | Remarks | Min | Max | HSSPI clock cycle | t <sub>cyc</sub> | M_SCLK0 | (CL = 20pF, I <sub>OL</sub> =-10mA, I <sub>OH</sub> =10mA), | 10 | - | ns |                        | M_SCLK↑ -> delayed sample clock↑ | t <sub>spcnt</sub> | - | 0  | t <sub>cyc</sub> | ns                               |                    | M_SDAT0 -> delayed sample clock↑ | t <sub>sdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | 3.5 | - | ns                 |                    | Input setup time           |    |   |    |  |                  |  | delayed sample clock↑ -> M_SDAT0 | t <sub>hdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | 2.0 | - | ns                 |                    | Input hold time            |    |   |    |  |                 |  | M_SCLK↑ -> M_SDAT0 | t <sub>oddata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | - | 6.5 | ns                 | t <sub>cyc</sub> -3.5ns | Output delay time          |   |                         |    |  |                   |  | M_SCLK↑ -> M_SDAT0 | t <sub>ohdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | 3.5 | - | ns                 |                     | Output hold time           |                         |   |    |  |                  |  | M_SCLK↑ -> M_SSEL | t <sub>odsel</sub> | M_SSEL0, 1 |  | - | 5.5               | ns                 | t <sub>cyc</sub> -4.5ns | Output delay time |                                             |   |    |  |                   |  |  | M_SCLK↑ -> M_SSEL | t <sub>ohsel</sub> | M_SSEL0, 1 |  | 4.5               | -                  | ns         |  | Output hold time     |   |    |  |                  |  |  |  |  |  |  |  |
| Parameter                        | Symbol                                                    | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conditions                                                  | Value                                       |                         | Unit | Remarks                 |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             | Min                                         | Max                     |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| HSSPI clock cycle                | t <sub>cyc</sub>                                          | M_SCLK0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (CL = 20pF, I <sub>OL</sub> =-10mA, I <sub>OH</sub> =10mA), | 10                                          | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> delayed sample clock↑ | t <sub>spcnt</sub>                                        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             | 0                                           | t <sub>cyc</sub>        | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SDAT0 -> delayed sample clock↑ | t <sub>sdata</sub>                                        | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | 3.5                                         | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Input setup time                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| delayed sample clock↑ -> M_SDAT0 | t <sub>hdata</sub>                                        | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | 2.0                                         | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Input hold time                  |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SDAT0               | t <sub>oddata</sub>                                       | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | -                                           | 6.5                     | ns   | t <sub>cyc</sub> -3.5ns |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output delay time                |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SDAT0               | t <sub>ohdata</sub>                                       | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | 3.5                                         | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output hold time                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SSEL                | t <sub>odsel</sub>                                        | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | -                                           | 5.5                     | ns   | t <sub>cyc</sub> -4.5ns |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output delay time                |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SSEL                | t <sub>ohsel</sub>                                        | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | 4.5                                         | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output hold time                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | Notes: This is Target Spec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | (1)DDR-HSSPI Interface Timing (SDR mode)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>HSSPI clock cycle</td><td>t<sub>cyc</sub></td><td>M_SCLK0</td><td rowspan="10">(CL = 20pF, I<sub>OL</sub>=-10mA, I<sub>OH</sub>=10mA),</td><td>10</td><td>-</td><td rowspan="2">ns</td><td rowspan="2">when Quad Page Program</td></tr><tr><td></td><td></td><td></td><td>20</td><td>-</td></tr><tr><td>M_SCLK↑ -&gt; delayed sample clock↑</td><td>t<sub>spcnt</sub></td><td>-</td><td>0</td><td>31.5</td><td>ns</td><td></td></tr><tr><td>M_SDAT0 -&gt; M_SCLK↑</td><td>t<sub>sdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>*1</td><td>-</td><td>ns</td><td></td></tr><tr><td>Input setup time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0</td><td>t<sub>hdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>*1</td><td>-</td><td>ns</td><td></td></tr><tr><td>Input hold time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0</td><td>t<sub>oddata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>-</td><td>t<sub>cyc</sub>/2 + 2</td><td>ns</td><td></td></tr><tr><td>Output delay time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0</td><td>t<sub>ohdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>t<sub>cyc</sub>/2 - 3</td><td>-</td><td>ns</td><td></td></tr><tr><td>Output hold time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL</td><td>t<sub>odsel</sub></td><td>M_SSEL0, 1</td><td rowspan="2"></td><td>-12.00+<br/>(SS2CD+0.5)*<br/>t<sub>cyc</sub></td><td>-</td><td>ns</td><td></td></tr><tr><td>Output delay time</td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL</td><td>t<sub>ohsel</sub></td><td>M_SSEL0, 1</td><td></td><td>t<sub>cyc</sub> - 2</td><td>-</td><td>ns</td><td></td></tr><tr><td>Output hold time</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> |                                                             |                                             |                         |      |                         |  | Parameter | Symbol | Pin Name | Conditions | Value |  | Unit | Remarks | Min | Max | HSSPI clock cycle | t <sub>cyc</sub> | M_SCLK0 | (CL = 20pF, I <sub>OL</sub> =-10mA, I <sub>OH</sub> =10mA), | 10 | - | ns | when Quad Page Program |                                  |                    |   | 20 | -                | M_SCLK↑ -> delayed sample clock↑ | t <sub>spcnt</sub> | -                                | 0                  | 31.5                       | ns  |   | M_SDAT0 -> M_SCLK↑ | t <sub>sdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | *1 | - | ns |  | Input setup time |  |                                  |                    |                            |     |   | M_SCLK↑ -> M_SDAT0 | t <sub>hdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | *1 | - | ns |  | Input hold time |  |                    |                     |                            |   |     | M_SCLK↑ -> M_SDAT0 | t <sub>oddata</sub>     | M_SDAT0_0-3<br>M_SDAT1_0-3 | - | t <sub>cyc</sub> /2 + 2 | ns |  | Output delay time |  |                    |                     |                            |     |   | M_SCLK↑ -> M_SDAT0 | t <sub>ohdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | t <sub>cyc</sub> /2 - 3 | - | ns |  | Output hold time |  |                   |                    |            |  |   | M_SCLK↑ -> M_SSEL | t <sub>odsel</sub> | M_SSEL0, 1              |                   | -12.00+<br>(SS2CD+0.5)*<br>t <sub>cyc</sub> | - | ns |  | Output delay time |  |  |                   |                    |            |  | M_SCLK↑ -> M_SSEL | t <sub>ohsel</sub> | M_SSEL0, 1 |  | t <sub>cyc</sub> - 2 | - | ns |  | Output hold time |  |  |  |  |  |  |  |
| Parameter                        | Symbol                                                    | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conditions                                                  | Value                                       |                         | Unit | Remarks                 |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             | Min                                         | Max                     |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| HSSPI clock cycle                | t <sub>cyc</sub>                                          | M_SCLK0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | (CL = 20pF, I <sub>OL</sub> =-10mA, I <sub>OH</sub> =10mA), | 10                                          | -                       | ns   | when Quad Page Program  |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             | 20                                          | -                       |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> delayed sample clock↑ | t <sub>spcnt</sub>                                        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             | 0                                           | 31.5                    | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SDAT0 -> M_SCLK↑               | t <sub>sdata</sub>                                        | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | *1                                          | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Input setup time                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SDAT0               | t <sub>hdata</sub>                                        | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | *1                                          | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Input hold time                  |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SDAT0               | t <sub>oddata</sub>                                       | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | -                                           | t <sub>cyc</sub> /2 + 2 | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output delay time                |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SDAT0               | t <sub>ohdata</sub>                                       | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | t <sub>cyc</sub> /2 - 3                     | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output hold time                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SSEL                | t <sub>odsel</sub>                                        | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | -12.00+<br>(SS2CD+0.5)*<br>t <sub>cyc</sub> | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output delay time                |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| M_SCLK↑ -> M_SSEL                | t <sub>ohsel</sub>                                        | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | t <sub>cyc</sub> - 2                        | -                       | ns   |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
| Output hold time                 |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | Notes: This is Target Spec.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | — SS2CD [1:0] should be configured as 01, 10, or 11.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |
|                                  |                                                           | — For *1, the delay of the delay sample clock can be configured (DLP function)..                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             |                                             |                         |      |                         |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                             |    |   |    |                        |                                  |                    |   |    |                  |                                  |                    |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                  |  |                                  |                    |                            |     |   |                    |                    |                            |    |   |    |  |                 |  |                    |                     |                            |   |     |                    |                         |                            |   |                         |    |  |                   |  |                    |                     |                            |     |   |                    |                     |                            |                         |   |    |  |                  |  |                   |                    |            |  |   |                   |                    |                         |                   |                                             |   |    |  |                   |  |  |                   |                    |            |  |                   |                    |            |  |                      |   |    |  |                  |  |  |  |  |  |  |  |

| Page                                                 | Section                                          | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                   |                                         |                           |            |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
|------------------------------------------------------|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------|-----------------------------------------|---------------------------|------------|---------------------------|---------|------|---------|------|---------|-------------------|------------------|---------|-------------------------------------------------------------------|----|---|----|--|----------------------------------|--------------------|--|---|------------------|----|--|------------------------------------------------------|---------------------|----------------------------|-----|---|----|--|-----------------------------------------------------|---------------------|----------------------------|-----|---|----|--|-----------------------------------------|---------------------|----------------------------|---|-----|----|---------------------------|----------------------------------------|---------------------|----------------------------|-----|---|----|--|----------------------------------------|--------------------|------------|---|-----|----|-------------------------|---------------------------------------|--------------------|------------|-----|---|----|--|-----------|--------|----------|------------|-------|--|------|---------|-----|-----|-------------------|------------------|---------|-------------------------------------------------------------------|------|---|----|--|----------------------------------|--------------------|--|---|------|----|--|----------------------------------------|---------------------|----------------------------|----|---|----|--|---------------------------------------|---------------------|----------------------------|----|---|----|--|-----------------------------------------|---------------------|----------------------------|---|---------------------------|----|--|----------------------------------------|---------------------|----------------------------|---------------------------|---|----|--|----------------------------------------|--------------------|------------|-----------------------------------------|---|----|--|---------------------------------------|--------------------|------------|-----------------------------|---|----|--|
| 225                                                  | 9.Electric Characteristics<br>9.1.4.16 DDR-HSSPI | <div>Revised as below:<br/>Error)<br/>(16-2) DDR-HSSPI Interface Timing (DDR mode)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>HSSPI clock cycle</td><td>t<sub>cyc</sub></td><td>M_SCLK0</td><td rowspan="9">(CL = 20pF,<br/>I<sub>OL</sub>=-10mA,<br/>I<sub>OH</sub>=10mA),</td><td>10</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; delayed sample clock↑</td><td>t<sub>spcnt</sub></td><td></td><td>0</td><td>t<sub>cyc</sub></td><td>ns</td><td></td></tr><tr><td>M_SDAT0 -&gt; delayed sample clock↑<br/>Input setup time</td><td>t<sub>isdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>1.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>delayed sample clock↑ -&gt; M_SDAT0<br/>Input hold time</td><td>t<sub>ihdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>1.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0<br/>Output delay time</td><td>t<sub>oddata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>-</td><td>3.5</td><td>ns</td><td>t<sub>cyc</sub>/2-1.5ns</td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0<br/>Output hold time</td><td>t<sub>ohdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>1.5</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL<br/>Output delay time</td><td>t<sub>odsel</sub></td><td>M_SSEL0, 1</td><td>-</td><td>7.0</td><td>ns</td><td>t<sub>cyc</sub>-3.0ns</td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL<br/>Output hold time</td><td>t<sub>ohsel</sub></td><td>M_SSEL0, 1</td><td>3.0</td><td>-</td><td>ns</td><td></td></tr></table> <div>Notes: This is Target Spec.</div> <div>Correct)<br/>(2)DDR-HSSPI Interface Timing (DDR mode)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>HSSPI clock cycle</td><td>t<sub>cyc</sub></td><td>M_SCLK0</td><td rowspan="9">(CL = 20pF,<br/>I<sub>OL</sub>=-10mA,<br/>I<sub>OH</sub>=10mA),</td><td>12.5</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; delayed sample clock↑</td><td>t<sub>spcnt</sub></td><td></td><td>0</td><td>31.5</td><td>ns</td><td></td></tr><tr><td>M_SDAT0 -&gt; M_SCLK↑<br/>Input setup time</td><td>t<sub>isdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>*1</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0<br/>Input hold time</td><td>t<sub>ihdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>*1</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0<br/>Output delay time</td><td>t<sub>oddata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>-</td><td>t<sub>cyc</sub>/4 + 1.5</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SDAT0<br/>Output hold time</td><td>t<sub>ohdata</sub></td><td>M_SDAT0_0-3<br/>M_SDAT1_0-3</td><td>t<sub>cyc</sub>/4 - 1.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL<br/>Output delay time</td><td>t<sub>odsel</sub></td><td>M_SSEL0, 1</td><td>-15.75+<br/>(SS2CD+0.5)*t<sub>cyc</sub></td><td>-</td><td>ns</td><td></td></tr><tr><td>M_SCLK↑ -&gt; M_SSEL<br/>Output hold time</td><td>t<sub>ohsel</sub></td><td>M_SSEL0, 1</td><td>0.75*t<sub>cyc</sub> - 2.0</td><td>-</td><td>ns</td><td></td></tr></table> <div>Notes: This is Target Spec.</div> <div>- SS2CD [1:0] should be configured as 01, 10, or 11.</div> <div>- For *1, the delay of the delay sample clock can be configured (DLP function)</div> | Parameter                                                         | Symbol                                  | Pin Name                  | Conditions | Value                     |         | Unit | Remarks | Min  | Max     | HSSPI clock cycle | t <sub>cyc</sub> | M_SCLK0 | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | 10 | - | ns |  | M_SCLK↑ -> delayed sample clock↑ | t <sub>spcnt</sub> |  | 0 | t <sub>cyc</sub> | ns |  | M_SDAT0 -> delayed sample clock↑<br>Input setup time | t <sub>isdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | 1.0 | - | ns |  | delayed sample clock↑ -> M_SDAT0<br>Input hold time | t <sub>ihdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | 1.0 | - | ns |  | M_SCLK↑ -> M_SDAT0<br>Output delay time | t <sub>oddata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | - | 3.5 | ns | t <sub>cyc</sub> /2-1.5ns | M_SCLK↑ -> M_SDAT0<br>Output hold time | t <sub>ohdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | 1.5 | - | ns |  | M_SCLK↑ -> M_SSEL<br>Output delay time | t <sub>odsel</sub> | M_SSEL0, 1 | - | 7.0 | ns | t <sub>cyc</sub> -3.0ns | M_SCLK↑ -> M_SSEL<br>Output hold time | t <sub>ohsel</sub> | M_SSEL0, 1 | 3.0 | - | ns |  | Parameter | Symbol | Pin Name | Conditions | Value |  | Unit | Remarks | Min | Max | HSSPI clock cycle | t <sub>cyc</sub> | M_SCLK0 | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | 12.5 | - | ns |  | M_SCLK↑ -> delayed sample clock↑ | t <sub>spcnt</sub> |  | 0 | 31.5 | ns |  | M_SDAT0 -> M_SCLK↑<br>Input setup time | t <sub>isdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | *1 | - | ns |  | M_SCLK↑ -> M_SDAT0<br>Input hold time | t <sub>ihdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | *1 | - | ns |  | M_SCLK↑ -> M_SDAT0<br>Output delay time | t <sub>oddata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | - | t <sub>cyc</sub> /4 + 1.5 | ns |  | M_SCLK↑ -> M_SDAT0<br>Output hold time | t <sub>ohdata</sub> | M_SDAT0_0-3<br>M_SDAT1_0-3 | t <sub>cyc</sub> /4 - 1.0 | - | ns |  | M_SCLK↑ -> M_SSEL<br>Output delay time | t <sub>odsel</sub> | M_SSEL0, 1 | -15.75+<br>(SS2CD+0.5)*t <sub>cyc</sub> | - | ns |  | M_SCLK↑ -> M_SSEL<br>Output hold time | t <sub>ohsel</sub> | M_SSEL0, 1 | 0.75*t <sub>cyc</sub> - 2.0 | - | ns |  |
| Parameter                                            | Symbol                                           | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                   |                                         |                           |            | Conditions                | Value   |      |         | Unit | Remarks |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
|                                                      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Min                                                               | Max                                     |                           |            |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| HSSPI clock cycle                                    | t <sub>cyc</sub>                                 | M_SCLK0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | 10                                      | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> delayed sample clock↑                     | t <sub>spcnt</sub>                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                   | 0                                       | t <sub>cyc</sub>          | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SDAT0 -> delayed sample clock↑<br>Input setup time | t <sub>isdata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | 1.0                                     | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| delayed sample clock↑ -> M_SDAT0<br>Input hold time  | t <sub>ihdata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | 1.0                                     | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SDAT0<br>Output delay time              | t <sub>oddata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | -                                       | 3.5                       | ns         | t <sub>cyc</sub> /2-1.5ns |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SDAT0<br>Output hold time               | t <sub>ohdata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | 1.5                                     | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SSEL<br>Output delay time               | t <sub>odsel</sub>                               | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | -                                       | 7.0                       | ns         | t <sub>cyc</sub> -3.0ns   |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SSEL<br>Output hold time                | t <sub>ohsel</sub>                               | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | 3.0                                     | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| Parameter                                            | Symbol                                           | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                   | Conditions                              | Value                     |            | Unit                      | Remarks |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
|                                                      |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Min                                                               |                                         | Max                       |            |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| HSSPI clock cycle                                    | t <sub>cyc</sub>                                 | M_SCLK0                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | 12.5                                    | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> delayed sample clock↑                     | t <sub>spcnt</sub>                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                   | 0                                       | 31.5                      | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SDAT0 -> M_SCLK↑<br>Input setup time               | t <sub>isdata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | *1                                      | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SDAT0<br>Input hold time                | t <sub>ihdata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | *1                                      | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SDAT0<br>Output delay time              | t <sub>oddata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | -                                       | t <sub>cyc</sub> /4 + 1.5 | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SDAT0<br>Output hold time               | t <sub>ohdata</sub>                              | M_SDAT0_0-3<br>M_SDAT1_0-3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | t <sub>cyc</sub> /4 - 1.0               | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SSEL<br>Output delay time               | t <sub>odsel</sub>                               | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | -15.75+<br>(SS2CD+0.5)*t <sub>cyc</sub> | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |
| M_SCLK↑ -> M_SSEL<br>Output hold time                | t <sub>ohsel</sub>                               | M_SSEL0, 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                   | 0.75*t <sub>cyc</sub> - 2.0             | -                         | ns         |                           |         |      |         |      |         |                   |                  |         |                                                                   |    |   |    |  |                                  |                    |  |   |                  |    |  |                                                      |                     |                            |     |   |    |  |                                                     |                     |                            |     |   |    |  |                                         |                     |                            |   |     |    |                           |                                        |                     |                            |     |   |    |  |                                        |                    |            |   |     |    |                         |                                       |                    |            |     |   |    |  |           |        |          |            |       |  |      |         |     |     |                   |                  |         |                                                                   |      |   |    |  |                                  |                    |  |   |      |    |  |                                        |                     |                            |    |   |    |  |                                       |                     |                            |    |   |    |  |                                         |                     |                            |   |                           |    |  |                                        |                     |                            |                           |   |    |  |                                        |                    |            |                                         |   |    |  |                                       |                    |            |                             |   |    |  |

| Page                                  | Section                                          | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                         |                          |          |            |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
|---------------------------------------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|--------------------------|----------|------------|------------|-------|------|---------|------|---------|---------------------------------------|------------------|-----------|-----------------------------------------|-----|---|----|--|-------------------------------------|------------------|-----------|---|---|----|--|--------------------------------|------------------|----------|------------|-------|----|------|-----------|--------|----------|---------------------------------------|------------------|-----------|-----------------------------------------|-------------------------|-----|-----|---------------------------------------|-------------------------------------|------------------|-----------------------------------------|--------------------------|---|----|--|-------------------------------------|------------------|-----------|-----------------------|---|----|--|--------------------------------|------------------|--------|---|---|----|--|
| 227                                   | 9.Electric Characteristics<br>9.1.4.17 Hyper BUS | <div>Revised as below:<br/>Error)</div> <div>(16-1) Hyper Bus Write Timing (HyperFlash)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>CS↑↓ -&gt; CK↑<br/>Chip Select setup time</td><td>t<sub>CSS</sub></td><td>M_CS#_1,2</td><td rowspan="2">(CL = 20pF,<br/>IOL=-10mA,<br/>IOH=10mA),</td><td>3.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>CK↓ -&gt; CS↑<br/>Chip select hold time</td><td>t<sub>CSH</sub></td><td>M_CS#_1,2</td><td>0</td><td>-</td><td>ns</td><td></td></tr></table> <div>Correct)</div> <div>(1)Hyper Bus Write Timing (HyperFlash)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>CS↑↓ -&gt; CK↑<br/>Chip Select setup time</td><td>t<sub>CSS</sub></td><td>M_CS#_1,2</td><td rowspan="2">(CL = 20pF,<br/>IOL=-10mA,<br/>IOH=10mA),</td><td>t<sub>CKCYC</sub> -2.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>CK↓ -&gt; CS↑<br/>Chip select hold time</td><td>t<sub>CSH</sub></td><td>M_CS#_1,2</td><td>t<sub>CKCYC</sub>/2</td><td>-</td><td>ns</td><td></td></tr></table>                                                                                                                                                                                                                                                                     | Parameter                               | Symbol                   | Pin Name | Conditions | Value      |       | Unit | Remarks | Min  | Max     | CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | 3.0 | - | ns |  | CK↓ -> CS↑<br>Chip select hold time | t <sub>CSH</sub> | M_CS#_1,2 | 0 | - | ns |  | Parameter                      | Symbol           | Pin Name | Conditions | Value |    | Unit | Remarks   | Min    | Max      | CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | t <sub>CKCYC</sub> -2.0 | -   | ns  |                                       | CK↓ -> CS↑<br>Chip select hold time | t <sub>CSH</sub> | M_CS#_1,2                               | t <sub>CKCYC</sub> /2    | - | ns |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| Parameter                             | Symbol                                           | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                         |                          |          |            | Conditions | Value |      |         | Unit | Remarks |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
|                                       |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Min                                     | Max                      |          |            |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | 3.0                      | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         | 0                        | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| Parameter                             | Symbol                                           | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Conditions                              | Value                    |          | Unit       | Remarks    |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
|                                       |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                         | Min                      | Max      |            |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | t <sub>CKCYC</sub> -2.0  | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         | t <sub>CKCYC</sub> /2    | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| 228                                   | 9.Electric Characteristics<br>9.1.4.17 Hyper BUS | <div>Revised as below:<br/>Error)</div> <div>(16-2) Hyper Bus Write Timing (HyperRAM)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>CS↑↓ -&gt; CK↑<br/>Chip Select setup time</td><td>t<sub>CSS</sub></td><td>M_CS#_1,2</td><td rowspan="3">(CL = 20pF,<br/>IOL=-10mA,<br/>IOH=10mA),</td><td>3.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>CK↓ -&gt; CS↑<br/>Chip select hold time</td><td>t<sub>CSH</sub></td><td>M_CS#_1,2</td><td>0</td><td>-</td><td>ns</td><td></td></tr><tr><td>RWDS↓-&gt; CK↓<br/>Data Mask Valid</td><td>t<sub>DMV</sub></td><td>M_RWDS</td><td>0</td><td>-</td><td>ns</td><td></td></tr></table> <div>Correct)</div> <div>(2) Hyper Bus Write Timing (HyperRAM)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>CS↑↓ -&gt; CK↑<br/>Chip Select setup time</td><td>t<sub>CSS</sub></td><td>M_CS#_1,2</td><td rowspan="3">(CL = 20pF,<br/>IOL=-10mA,<br/>IOH=10mA),</td><td>t<sub>CKCYC</sub> - 2.0</td><td>-</td><td>ns</td><td></td></tr><tr><td>CK↓ -&gt; CS↑<br/>Chip select hold time</td><td>t<sub>CSH</sub></td><td>M_CS#_1,2</td><td>t<sub>CKCYC</sub>/2</td><td>-</td><td>ns</td><td></td></tr><tr><td>RWDS↓-&gt; CK↓<br/>Data Mask Valid</td><td>t<sub>DMV</sub></td><td>M_RWDS</td><td>1</td><td>-</td><td>ns</td><td></td></tr></table> | Parameter                               | Symbol                   | Pin Name | Conditions | Value      |       | Unit | Remarks | Min  | Max     | CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | 3.0 | - | ns |  | CK↓ -> CS↑<br>Chip select hold time | t <sub>CSH</sub> | M_CS#_1,2 | 0 | - | ns |  | RWDS↓-> CK↓<br>Data Mask Valid | t <sub>DMV</sub> | M_RWDS   | 0          | -     | ns |      | Parameter | Symbol | Pin Name | Conditions                            | Value            |           | Unit                                    | Remarks                 | Min | Max | CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>                    | M_CS#_1,2        | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | t <sub>CKCYC</sub> - 2.0 | - | ns |  | CK↓ -> CS↑<br>Chip select hold time | t <sub>CSH</sub> | M_CS#_1,2 | t <sub>CKCYC</sub> /2 | - | ns |  | RWDS↓-> CK↓<br>Data Mask Valid | t <sub>DMV</sub> | M_RWDS | 1 | - | ns |  |
| Parameter                             | Symbol                                           | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                         |                          |          |            | Conditions | Value |      |         | Unit | Remarks |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
|                                       |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Min                                     | Max                      |          |            |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | 3.0                      | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         | 0                        | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| RWDS↓-> CK↓<br>Data Mask Valid        | t <sub>DMV</sub>                                 | M_RWDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         | 0                        | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| Parameter                             | Symbol                                           | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Conditions                              | Value                    |          | Unit       | Remarks    |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
|                                       |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                         | Min                      | Max      |            |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | (CL = 20pF,<br>IOL=-10mA,<br>IOH=10mA), | t <sub>CKCYC</sub> - 2.0 | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub>                                 | M_CS#_1,2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                         | t <sub>CKCYC</sub> /2    | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |
| RWDS↓-> CK↓<br>Data Mask Valid        | t <sub>DMV</sub>                                 | M_RWDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                         | 1                        | -        | ns         |            |       |      |         |      |         |                                       |                  |           |                                         |     |   |    |  |                                     |                  |           |   |   |    |  |                                |                  |          |            |       |    |      |           |        |          |                                       |                  |           |                                         |                         |     |     |                                       |                                     |                  |                                         |                          |   |    |  |                                     |                  |           |                       |   |    |  |                                |                  |        |   |   |    |  |

Page

Section

229

9.Electric Characteristics

9.1.4.17 Hyper BUS

Change Results

Revised as below:

Error)

(16-3) Hyper Bus Read Timing (HyperFlash)

| Parameter                                           | Symbol           | Pin Name  | Conditions                                                        | Value |      | Unit | Remarks |
|-----------------------------------------------------|------------------|-----------|-------------------------------------------------------------------|-------|------|------|---------|
|                                                     |                  |           |                                                                   | Min   | Max  |      |         |
| CS↑↓ -> CK↑<br>Chip Select setup time               | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | 3.0   | -    | ns   |         |
| DQ -> CK↑↓<br>Input setup time                      | t <sub>IS</sub>  | M_DQ7-0   |                                                                   | 1.25  | -    | ns   |         |
| CK↑↓ -> DQ<br>Input hold time                       | t <sub>IH</sub>  | M_DQ7-0   |                                                                   | 1.25  | -    | ns   |         |
| CK↓ -> CS↑<br>Chip select hold time                 | t <sub>CSH</sub> | M_CS#_1,2 |                                                                   | 0     | -    | ns   |         |
| RDS↑↓> DQ (valid)<br>RDS transition to DQ valid     | t <sub>DSS</sub> | M_DQ7-0   |                                                                   | -0.8  | +0.8 | ns   |         |
| RDS↑↓> DQ (invalid)<br>RDS transition to DQ invalid | t <sub>DSH</sub> | M_DQ7-0   |                                                                   | -0.8  | +0.8 | ns   |         |

Correct)

(3) Hyper Bus Read Timing (HyperFlash)

| Parameter                             | Symbol           | Pin Name  | Conditions                                                        | Value                   |     | Unit | Remarks |
|---------------------------------------|------------------|-----------|-------------------------------------------------------------------|-------------------------|-----|------|---------|
|                                       |                  |           |                                                                   | Min                     | Max |      |         |
| CS↑↓ -> CK↑<br>Chip Select setup time | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | t <sub>RDCYC</sub> -2.0 | -   | ns   |         |
| DQ -> CK↑↓<br>Setup time              | t <sub>IS</sub>  | M_DQ7-0   |                                                                   | 1.25                    | -   | ns   |         |
| CK↑↓ -> DQ<br>Hold time               | t <sub>IH</sub>  | M_DQ7-0   |                                                                   | 1.25                    | -   | ns   |         |
| CK↓ -> CS↑<br>Chip select hold time   | t <sub>CSH</sub> | M_CS#_1,2 |                                                                   | t <sub>RDCYC</sub> / 2  | -   | ns   |         |
| RDS↑↓> DQ<br>Setup time               | t <sub>DSS</sub> | M_DQ7-0   |                                                                   | -0.8                    |     | ns   |         |
| RDS↑↓> DQ<br>Hold time                | t <sub>DSH</sub> | M_DQ7-0   |                                                                   | -0.8                    |     | ns   |         |

Page

Section

Change Results

230

9.Electric Characteristics

9.1.4.17 Hyper BUS

Revised as below:

Error)

(16-4) Hyper Bus Read Timing (HyperRAM)

| Parameter                                              | Symbol           | Pin Name  | Conditions                                                        | Value |      | Unit | Remarks |
|--------------------------------------------------------|------------------|-----------|-------------------------------------------------------------------|-------|------|------|---------|
|                                                        |                  |           |                                                                   | Min   | Max  |      |         |
| CS↓ → CK↑<br>Chip Select setup time                    | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | 3.0   | -    | ns   |         |
| DQ → CK↑<br>Input setup time                           | t <sub>IS</sub>  | M_DQ7-0   |                                                                   | 1.25  | -    | ns   |         |
| CK↑↓ → DQ<br>Input hold time                           | t <sub>IH</sub>  | M_DQ7-0   |                                                                   | 1.25  | -    | ns   |         |
| CK↓ → CS↑<br>Chip select hold time                     | t <sub>CSH</sub> | M_CS#_1,2 |                                                                   | 0     | -    | ns   |         |
| RWDS↑↓ > DQ (valid)<br>RWDS transition to DQ valid     | t <sub>OSS</sub> | M_DQ7-0   |                                                                   | -0.8  | +0.8 | ns   |         |
| RWDS↑↓ > DQ (invalid)<br>RWDS transition to DQ invalid | t <sub>DSH</sub> | M_DQ7-0   |                                                                   | -0.8  | +0.8 | ns   |         |
| CK↑ → RWDS↑↓<br>Refresh Indicator Valid                | t <sub>RIV</sub> | M_RWDS    |                                                                   | -     | 6    | ns   |         |
| CK↑ → RWDS(Hi-z)<br>Refresh Indicator Hold             | t <sub>RIH</sub> | M_RWDS    |                                                                   | 0     | -    | ns   |         |

Correct)

(4) Hyper Bus Read Timing (HyperRAM)

| Parameter                                  | Symbol           | Pin Name  | Conditions                                                        | Value                    |     | Unit | Remarks |
|--------------------------------------------|------------------|-----------|-------------------------------------------------------------------|--------------------------|-----|------|---------|
|                                            |                  |           |                                                                   | Min                      | Max |      |         |
| CS↓ → CK↑<br>Chip Select setup time        | t <sub>CSS</sub> | M_CS#_1,2 | (CL = 20pF,<br>I <sub>OL</sub> =-10mA,<br>I <sub>OH</sub> =10mA), | t <sub>RDSCYC</sub> -2.0 | -   | ns   |         |
| DQ → CK↑<br>Setup time                     | t <sub>IS</sub>  | M_DQ7-0   |                                                                   | 1.25                     | -   | ns   |         |
| CK↑↓ → DQ<br>Hold time                     | t <sub>IH</sub>  | M_DQ7-0   |                                                                   | 1.25                     | -   | ns   |         |
| CK↓ → CS↑<br>Chip select hold time         | t <sub>CSH</sub> | M_CS#_1,2 |                                                                   | t <sub>RDSCYC</sub> /2   | -   | ns   |         |
| RWDS↑↓ > DQ (valid)<br>Setup time          | t <sub>OSS</sub> | M_DQ7-0   |                                                                   | -0.8                     | -   | ns   |         |
| RWDS↑↓ > DQ (invalid)<br>Hold time         | t <sub>DSH</sub> | M_DQ7-0   |                                                                   | -0.8                     | -   | ns   |         |
| CK↑ → RWDS↑↓<br>Refresh Indicator Valid    | t <sub>RIV</sub> | M_RWDS    |                                                                   | -                        | 6   | ns   |         |
| CK↑ → RWDS(Hi-z)<br>Refresh Indicator Hold | t <sub>RIH</sub> | M_RWDS    |                                                                   | 0                        | -   | ns   |         |

| Page                        | Section                                        | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                           |        |          |            |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
|-----------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|--------|----------|------------|---------------------------------------|-------|------|---------|------|---------|--------------|-------------------|--------|---|-------|---|----|---|---------------------------|---------------------|---------------|---|---|----|-----------|--------|----------|------------|-------|--|------|---------|-----|-----|--------------|-------------------|--------|-----------------------------------------------------------|-------|---|----|---|----------------------------|--------------------|---------------|-------|---|----|---------------------------|-----------------------------|-------------------|---------------|---|-----|----|---|-----------|--------|----------|------------|-------|--|------|---------|-----|-----|--------------|-------------------|--------|---|------|---|----|---|---------------------------|---------------------|---------------|-----|---|----|-----------|--------|----------|------------|-------|--|------|---------|-----|-----|--------------|-------------------|--------|-----------------------------------------------------------|------|---|----|---|----------------------------|--------------------|---------------|------|---|----|---------------------------------------|-----------------------------|-------------------|---------------|---|------|----|---|
| 234                         | 9.Electric Characteristics<br>9.1.4.19 MediaLB | <div>Revised as below:<br/>Error)</div> <div>(19-1) MediaLB Input Timing</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>MLBCLK cycle</td><td>t<sub>mclk</sub></td><td>MLBCLK</td><td rowspan="2">-</td><td>19.53</td><td>-</td><td>ns</td><td rowspan="2">-</td></tr><tr><td>MLBSIG, MLBDAT Input hold</td><td>t<sub>dthmcf</sub></td><td>MLBSIG MLBDAT</td><td>0</td><td>-</td><td>ns</td></tr></table> <div>Notes: This is Target Spec.</div> <div>(19-2) MediaLB Output Timing</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>MLBCLK cycle</td><td>t<sub>mclk</sub></td><td>MLBCLK</td><td rowspan="3">(CL = 20pF, I<sub>OL</sub>=-6mA, I<sub>OH</sub>=6mA),</td><td>19.53</td><td>-</td><td>ns</td><td>-</td></tr><tr><td>MLBSIG, MLBDAT output stop</td><td>t<sub>mcfdz</sub></td><td>MLBSIG MLBDAT</td><td>10.73</td><td>-</td><td>ns</td><td>t<sub>mclk</sub> - 8.8ns</td></tr><tr><td>MLBSIG, MLBDAT output delay</td><td>t<sub>dout</sub></td><td>MLBSIG MLBDAT</td><td>0</td><td>8.8</td><td>ns</td><td>-</td></tr></table> <div>Notes: This is Target Spec.</div> <div>Correct)</div> <div>(1) MediaLB Input Timing</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>MLBCLK cycle</td><td>t<sub>mclk</sub></td><td>MLBCLK</td><td rowspan="2">-</td><td>40.0</td><td>-</td><td>ns</td><td rowspan="2">-</td></tr><tr><td>MLBSIG, MLBDAT Input hold</td><td>t<sub>dthmcf</sub></td><td>MLBSIG MLBDAT</td><td>4.0</td><td>-</td><td>ns</td></tr></table> <div>Notes: This is Target Spec.</div> <div>- CLK_HAPP1B0(internal) frequency &gt; MLBCLK(external) frequency</div> <div>(2) MediaLB Output Timing</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>MLBCLK cycle</td><td>t<sub>mclk</sub></td><td>MLBCLK</td><td rowspan="3">(CL = 20pF, I<sub>OL</sub>=-6mA, I<sub>OH</sub>=6mA),</td><td>40.0</td><td>-</td><td>ns</td><td>-</td></tr><tr><td>MLBSIG, MLBDAT output stop</td><td>t<sub>mcfdz</sub></td><td>MLBSIG MLBDAT</td><td>26.5</td><td>-</td><td>ns</td><td>t<sub>mclk</sub> - t<sub>dout</sub></td></tr><tr><td>MLBSIG, MLBDAT output delay</td><td>t<sub>dout</sub></td><td>MLBSIG MLBDAT</td><td>0</td><td>13.5</td><td>ns</td><td>-</td></tr></table> <div>Notes: This is Target Spec.</div> <div>- CLK_HAPP1B0(internal) frequency &gt; MLBCLK(external) frequency</div> | Parameter                                                 | Symbol | Pin Name | Conditions | Value                                 |       | Unit | Remarks | Min  | Max     | MLBCLK cycle | t <sub>mclk</sub> | MLBCLK | - | 19.53 | - | ns | - | MLBSIG, MLBDAT Input hold | t <sub>dthmcf</sub> | MLBSIG MLBDAT | 0 | - | ns | Parameter | Symbol | Pin Name | Conditions | Value |  | Unit | Remarks | Min | Max | MLBCLK cycle | t <sub>mclk</sub> | MLBCLK | (CL = 20pF, I <sub>OL</sub> =-6mA, I <sub>OH</sub> =6mA), | 19.53 | - | ns | - | MLBSIG, MLBDAT output stop | t <sub>mcfdz</sub> | MLBSIG MLBDAT | 10.73 | - | ns | t <sub>mclk</sub> - 8.8ns | MLBSIG, MLBDAT output delay | t <sub>dout</sub> | MLBSIG MLBDAT | 0 | 8.8 | ns | - | Parameter | Symbol | Pin Name | Conditions | Value |  | Unit | Remarks | Min | Max | MLBCLK cycle | t <sub>mclk</sub> | MLBCLK | - | 40.0 | - | ns | - | MLBSIG, MLBDAT Input hold | t <sub>dthmcf</sub> | MLBSIG MLBDAT | 4.0 | - | ns | Parameter | Symbol | Pin Name | Conditions | Value |  | Unit | Remarks | Min | Max | MLBCLK cycle | t <sub>mclk</sub> | MLBCLK | (CL = 20pF, I <sub>OL</sub> =-6mA, I <sub>OH</sub> =6mA), | 40.0 | - | ns | - | MLBSIG, MLBDAT output stop | t <sub>mcfdz</sub> | MLBSIG MLBDAT | 26.5 | - | ns | t <sub>mclk</sub> - t <sub>dout</sub> | MLBSIG, MLBDAT output delay | t <sub>dout</sub> | MLBSIG MLBDAT | 0 | 13.5 | ns | - |
| Parameter                   | Symbol                                         | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                           |        |          |            | Conditions                            | Value |      |         | Unit | Remarks |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
|                             |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Min                                                       | Max    |          |            |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBCLK cycle                | t <sub>mclk</sub>                              | MLBCLK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -                                                         | 19.53  | -        | ns         | -                                     |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBSIG, MLBDAT Input hold   | t <sub>dthmcf</sub>                            | MLBSIG MLBDAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | 0      | -        | ns         |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| Parameter                   | Symbol                                         | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conditions                                                | Value  |          | Unit       | Remarks                               |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
|                             |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           | Min    | Max      |            |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBCLK cycle                | t <sub>mclk</sub>                              | MLBCLK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | (CL = 20pF, I <sub>OL</sub> =-6mA, I <sub>OH</sub> =6mA), | 19.53  | -        | ns         | -                                     |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBSIG, MLBDAT output stop  | t <sub>mcfdz</sub>                             | MLBSIG MLBDAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | 10.73  | -        | ns         | t <sub>mclk</sub> - 8.8ns             |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBSIG, MLBDAT output delay | t <sub>dout</sub>                              | MLBSIG MLBDAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | 0      | 8.8      | ns         | -                                     |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| Parameter                   | Symbol                                         | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conditions                                                | Value  |          | Unit       | Remarks                               |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
|                             |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           | Min    | Max      |            |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBCLK cycle                | t <sub>mclk</sub>                              | MLBCLK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | -                                                         | 40.0   | -        | ns         | -                                     |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBSIG, MLBDAT Input hold   | t <sub>dthmcf</sub>                            | MLBSIG MLBDAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | 4.0    | -        | ns         |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| Parameter                   | Symbol                                         | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Conditions                                                | Value  |          | Unit       | Remarks                               |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
|                             |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                           | Min    | Max      |            |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBCLK cycle                | t <sub>mclk</sub>                              | MLBCLK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | (CL = 20pF, I <sub>OL</sub> =-6mA, I <sub>OH</sub> =6mA), | 40.0   | -        | ns         | -                                     |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBSIG, MLBDAT output stop  | t <sub>mcfdz</sub>                             | MLBSIG MLBDAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | 26.5   | -        | ns         | t <sub>mclk</sub> - t <sub>dout</sub> |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| MLBSIG, MLBDAT output delay | t <sub>dout</sub>                              | MLBSIG MLBDAT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                           | 0      | 13.5     | ns         | -                                     |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |
| 246                         | 11.Ordering Information                        | <div>Revised part number as below:<br/>Error)</div> <div>S6J331EKCB*****<br/>S6J331EKBB*****<br/>S6J331EKAB*****<br/>S6J331EJCB*****<br/>S6J332EJCB*****<br/>S6J331EJAB*****<br/>S6J332EJAB*****<br/>S6J332EHSB*****</div> <div>Correct)</div> <div>S6J331EKCC*****<br/>S6J331EKBC*****<br/>S6J331EKAC*****<br/>S6J331EJCC*****<br/>S6J332EJCC*****<br/>S6J331EJAC*****<br/>S6J332EJAC*****<br/>S6J332EHSC*****</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                           |        |          |            |                                       |       |      |         |      |         |              |                   |        |   |       |   |    |   |                           |                     |               |   |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |       |   |    |   |                            |                    |               |       |   |    |                           |                             |                   |               |   |     |    |   |           |        |          |            |       |  |      |         |     |     |              |                   |        |   |      |   |    |   |                           |                     |               |     |   |    |           |        |          |            |       |  |      |         |     |     |              |                   |        |                                                           |      |   |    |   |                            |                    |               |      |   |    |                                       |                             |                   |               |   |      |    |   |

| Page                       | Section                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rev. *B                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 13                         | 3.Product Description<br>3.2.Product description                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Revised the below:</p> <p>Error)</p> <p>(None)</p> <p>12bit resolution, 2 unit</p> <p>48 channels of analog input for TEQFP208</p> <p>48 channels of analog input for TEQFP176</p> <p>35 channel of analog input for TEQFP144</p> <p>24 channels of them are shared with the SMC for TEQFP208/176/144</p> <p>External trigger and timer trigger are available.</p> <p>The description of the A/D converter function should be referred in the S6J3300 hardware manual. Though the chapter of I/O port in Traveo™ Platform hardware manual describes another A/D converter function, do not refer it.</p> <p>Correct)</p> <p>12bit resolution, 2 unit(Unit0 is possible to select channels 4-31. Unit1 is possible to select channels 32-63.)</p> <p>48 channels of analog input for TEQFP208</p> <p>48 channels of analog input for TEQFP176</p> <p>35 channel of analog input for TEQFP144</p> <p>24 channels of them are shared with the SMC for TEQFP208/176/144</p> <p>External trigger and timer trigger are available.</p> <p>The description of the A/D converter function should be referred in the S6J3300 hardware manual. Though the chapter of I/O port in Traveo™ Platform hardware manual describes another A/D converter function, do not refer it.</p> <p>A/D Channel Control Register (ADC12Bn_CHCTRL0)[bit5:0] ANIN[5:0] : Analog Input Selection bits.</p> <p>This register setting is possible of channel 0-31 (the register value is 00_0000 to 01_1111).</p> |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 15                         | 3.Product Description<br>3.2.Product description                                                                                                                                                                                                                                                                                                                                                                                                               | <p>Revised as below:</p> <p>Correct)</p> <table><tr><td>Power Supply Control (PSC)</td><td><p>PSC (PSC_1) output is used for external 1.2V power supply module control and automatically switched with the following condition.</p><p>"High": Request to supply VCC12</p><ul style="list-style-type: none"><li>- "Power ON Reset" is released</li><li>- CPU wakes up from PSS shutdown mode</li></ul><p>"Low": Request to stop supplying VCC12</p><ul style="list-style-type: none"><li>- CPU transfers from RUN mode to PSS shutdown mode.</li></ul></td></tr></table> <p>For timing chart of output signals include PSC in detail, see the "S6J3300 hardware manual" and chapter "State Transition"</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Power Supply Control (PSC) | <p>PSC (PSC_1) output is used for external 1.2V power supply module control and automatically switched with the following condition.</p> <p>"High": Request to supply VCC12</p> <ul style="list-style-type: none"><li>- "Power ON Reset" is released</li><li>- CPU wakes up from PSS shutdown mode</li></ul> <p>"Low": Request to stop supplying VCC12</p> <ul style="list-style-type: none"><li>- CPU transfers from RUN mode to PSS shutdown mode.</li></ul> |
| Power Supply Control (PSC) | <p>PSC (PSC_1) output is used for external 1.2V power supply module control and automatically switched with the following condition.</p> <p>"High": Request to supply VCC12</p> <ul style="list-style-type: none"><li>- "Power ON Reset" is released</li><li>- CPU wakes up from PSS shutdown mode</li></ul> <p>"Low": Request to stop supplying VCC12</p> <ul style="list-style-type: none"><li>- CPU transfers from RUN mode to PSS shutdown mode.</li></ul> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 22<br>23                   | 4.Package and Pin Assignment<br>4.2.Package Dimensions                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Revised as below:</p> <p>4.2.3.TEQFP144</p> <p>Error)</p> <p>Figure 4 6: TEQFP144</p> <p>Figure 4 7: TEQFP144</p> <p>The package dimension of TEQFP144 (0.4mm Pitch) is the provisional version.</p> <p>Correct)</p> <p>Figure 4 6: TEQFP144 (0.5mm Pitch)</p> <p>Figure 4 7: TEQFP144 (0.4mm Pitch)</p> <p>The package dimension of TEQFP144 (0.4mm Pitch) is the formal version.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 31<br>32                   | 6.Port Description<br>6.1 Port Description list                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Revised the below:</p> <p>Error)</p> <p>ADC Analog [4 to18, 21, 24 to 26, 28 to 32, 39 to 47, 49 to 63] input pin</p> <p>Correct)</p> <p>ADC Unit0 [ch.4 to ch.18, ch.21, ch.24 to ch.26, ch.28 to ch.31] input pin</p> <p>ADC Unit1 [ch.32, ch.39 to ch.47, ch.49 to ch.63] input pin</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

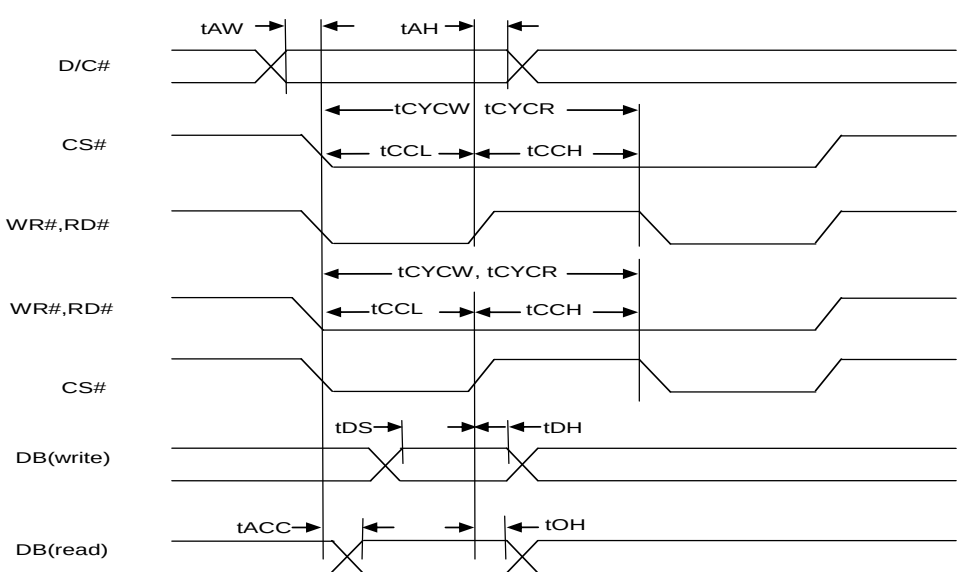


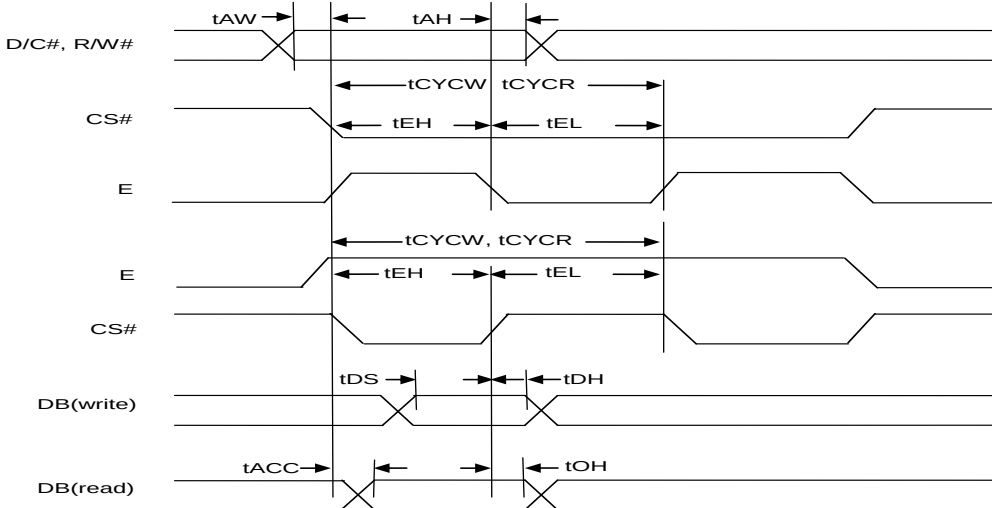
| Page | Section                                                                    | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 155  | 8.Precautions and Handling Devices<br>8.1.1.Precautions for Product Design | <p>Revised the below:<br/>Error)<br/>(1) Preventing Over-Voltage and Over-Current Conditions<br/>Exposure to voltage or current levels in excess of maximum ratings at any pin is likely to cause deterioration within the device, and in extreme cases leads to permanent damage of the device. Try to prevent such overvoltage or over-current conditions at the design stage.</p> <p>Correct)<br/>(1) Preventing Over-Voltage and Over-Current Conditions<br/>Exposure to voltage or current levels in excess of maximum ratings at any pin is likely to cause deterioration within the device and in extreme cases leads to permanent damage of the device. Try to prevent such overvoltage or over-current conditions at the design stage.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 159  | 8.Precautions and Handling Devices<br>8.2.Handling Devices                 | <p>Revised as below:<br/>Correct)<br/><b>Method to Switch Off VCC12 during Power-Off Sequence</b><br/>During power-off sequence, it is necessary to switch off VCC12 by driving PSC1 pin low by entering PSS mode (power domain 2 off). If VCC12 needs to be switched off by other means, RSTX needs to be asserted before switching off VCC12 to inactivate the operation of VCC12 supplied domain below the operation assurance range.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 164  | 9.Electric Characteristics<br>9.1.2 Recommended operating condition        | <p>Revised as below:<br/>Error)<br/>The detection/release threshold values of following LVD channels are potentially below supply range defined in 9.1.2 Recommended operating condition (refer to "9.1.4.11 Low Voltage Detection (External Voltage)" and "9.1.4.12 Low Voltage Detection (Internal Voltage)" for detection/release threshold values for these LVD channels):<br/>LVDL0<br/>LVDL1<br/>LVDL2<br/>LVDH0<br/>LVDH1<br/>LVDH2</p> <p>Correct)<br/>The detection/release threshold values of following LVD channels are potentially below supply range defined in 9.1.2 Recommended operating condition (refer to "9.1.4.11 Low Voltage Detection (External Voltage)" and "9.1.4.12 Low Voltage Detection (Internal Voltage)" for detection/release threshold values for these LVD channels):<br/>LVDL0<br/>LVDL1<br/>LVDL2<br/>LVDH0<br/>LVDH1<br/>LVDH2<br/>Detection voltage of the external low voltage detection reset (initial) is <math>2.6V \pm 3.5\%^{*2}</math> or <math>4.0V \pm 3.5\%^{*1}</math>.<br/>This detection voltage level setting is below the minimum operation assurance voltage (<math>2.7V^{*2}</math> or <math>4.0V^{*1}</math>).<br/>Between this detection voltage and the minimum operation assurance voltage,<br/>MCU functions are not guaranteed except for the low voltage detector.<br/>Note that although the detection level is below the minimum operation guarantee voltage,<br/>the LVD reset factor flag is set as the voltage drops below the detection level.</p> |

| Page                              | Section                                                     | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                 |                 |                                    |                  |                  |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
|-----------------------------------|-------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-----------------|------------------------------------|------------------|------------------|------------------|------------------|--|--|--|------------|-----------|--|--|--|--|--|--|-----------------|-----------------|--|------------------|------------------|------------------|------------------|-----------------------------------|---|---|---|---|-----|----|-----|-----|-----|---|---|---|----|-----|-----|-----|--|--|----|---|----|----|-----|-----|--|--|--|
| 174                               | 9.Electric Characteristics<br>9.1.4.1.Source clock timing   | <p>Revised as below:<br/>Error)</p> <p>Notes:</p> <ul style="list-style-type: none"><li>- The maximum/minimum values have been standardized with the main clock and PLL clock in use.</li><li>- Jitter of source oscillator must be smaller than 300ppm.</li></ul> <p>Correct)</p> <p>Notes:</p> <ul style="list-style-type: none"><li>- The maximum/minimum values have been standardized with the main clock and PLL clock in use.</li><li>- Jitter of source oscillator must be smaller than 300ppm.</li><li>- Enough evaluation and adjustment are recommended using oscillator on your system board.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                 |                 |                                    |                  |                  |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
| 177                               | 9.Electric Characteristics<br>9.1.4.3.Internal clock timing | <p>Revised as below:<br/>Error)</p> <ul style="list-style-type: none"><li>- Note that Ta=125 condition is not supported in this product type.</li></ul> <p>When using SSCG_PLL output for these internal clock, the MAX value of frequency has the following restrictions.</p> <ul style="list-style-type: none"><li>- On the presumption that the modulation mode of SSCG_PLL is used with down spread, the MAX value of the frequency is standardized.</li><li>- This means that MAX value of frequency is the maximum value when SSCG_PLL was modulated.</li></ul> <p>Correct)</p> <ul style="list-style-type: none"><li>- Note that Ta=125 condition is not supported in this product type.</li></ul> <p>When using SSCG_PLL output for these internal clock, the MAX value of frequency has the following restrictions.</p> <ul style="list-style-type: none"><li>- On the presumption that the modulation mode of SSCG_PLL is used with down spread, the MAX value of the frequency is standardized.</li><li>- This means that MAX value of frequency is the maximum value when SSCG_PLL was modulated.</li><li>- "Unused" means a clock source which doesn't have any supply destinations. Configure it as disable with performing at the lower clock frequency than the described maximum.</li></ul> |                 |                 |                                    |                  |                  |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
| 179                               | 9.Electric Characteristics<br>9.1.4.3.internal clock timing | <p>Added Oscillation clock frequency as below:</p> <p>Correct)</p> <table><tr><th colspan="2" rowspan="3"></th><th colspan="8">Internal Operation Clock Frequency</th></tr><tr><th rowspan="2">Main Clock</th><th colspan="7">PLL Clock</th></tr><tr><th>Multiplied by 1</th><th>Multiplied by 2</th><th></th><th>Multiplied by 15</th><th>Multiplied by 30</th><th>Multiplied by 40</th><th>Multiplied by 60</th></tr><tr><td rowspan="3">Oscillation clock frequency [MHz]</td><td>4</td><td>2</td><td>4</td><td>8</td><td>...</td><td>60</td><td>120</td><td>160</td><td>240</td></tr><tr><td>8</td><td>4</td><td>8</td><td>16</td><td>...</td><td>120</td><td>240</td><td></td><td></td></tr><tr><td>16</td><td>8</td><td>16</td><td>32</td><td>...</td><td>240</td><td></td><td></td><td></td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                 |                 | Internal Operation Clock Frequency |                  |                  |                  |                  |  |  |  | Main Clock | PLL Clock |  |  |  |  |  |  | Multiplied by 1 | Multiplied by 2 |  | Multiplied by 15 | Multiplied by 30 | Multiplied by 40 | Multiplied by 60 | Oscillation clock frequency [MHz] | 4 | 2 | 4 | 8 | ... | 60 | 120 | 160 | 240 | 8 | 4 | 8 | 16 | ... | 120 | 240 |  |  | 16 | 8 | 16 | 32 | ... | 240 |  |  |  |
|                                   |                                                             | Internal Operation Clock Frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                 |                                    |                  |                  |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
|                                   |                                                             | Main Clock                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                 |                 | PLL Clock                          |                  |                  |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
|                                   |                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Multiplied by 1 | Multiplied by 2 |                                    | Multiplied by 15 | Multiplied by 30 | Multiplied by 40 | Multiplied by 60 |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
| Oscillation clock frequency [MHz] | 4                                                           | 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 4               | 8               | ...                                | 60               | 120              | 160              | 240              |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
|                                   | 8                                                           | 4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 8               | 16              | ...                                | 120              | 240              |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |
|                                   | 16                                                          | 8                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 16              | 32              | ...                                | 240              |                  |                  |                  |  |  |  |            |           |  |  |  |  |  |  |                 |                 |  |                  |                  |                  |                  |                                   |   |   |   |   |     |    |     |     |     |   |   |   |    |     |     |     |  |  |    |   |    |    |     |     |  |  |  |

| Page                               | Section                                                                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                          |                    |                   |                    |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|--------------------|-------------------|--------------------|---------------|---------------------------------------------------------------------------------------------|-----------------|-----------------|---------|---------|---------|---------|------------------------------------|-------------------|---------------------|------------------|-------------------------------------------------|--------------------------------------------------------------------------|--------------------|-----|-------------------------------------------------------------------------------|--------------------|-------------------|--------------------|-----------|--------|----------|------------|---------------|---|-----------|--------|----------|------------|-------|-----|-----|------|---------------------|------------------|-------------------------------------------------|--------------------------------------------------------------------------|------------------------------------|-------------------|------|-----|--------------------|-------------------|--------------------|---|---------------------------------------------------------------------------------------------|--------------------|-------------------|--------------------|------|----|------|-----|------|---|
| 208                                | 9.Electric Characteristics<br>9.1.4.6Multi-Function Serial                      | <div>Revised as below:</div> <div>Error)</div> <div>I<sup>2</sup>C timing (SMR:MD2-0=0b100)<br/>(T<sub>A</sub>: Recommended operating conditions, V<sub>cc</sub>5=V<sub>cc</sub>53=5.0 V ±10%, V<sub>cc</sub>12=1.15V ±0.06V, V<sub>ss</sub>=0.0 V)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Standard Mode</th><th colspan="2">High-Speed Mode</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th><th>Min</th><th>Max</th></tr><tr><td>SCL clock frequency</td><td>f<sub>SCL</sub></td><td>SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17</td><td>C<sub>L</sub>=50pF, R=(V<sub>p</sub>/I<sub>OL</sub>)<sup>*1</sup></td><td>0</td><td>100</td><td>0</td><td>400</td><td>kHz</td><td></td></tr></table> <div>Correct)</div> <div>I<sup>2</sup>C timing (SMR:MD2-0=0b100)<br/>(T<sub>A</sub>: Recommended operating conditions, V<sub>cc</sub>5=V<sub>cc</sub>53=5.0 V ±10%, V<sub>cc</sub>12=1.15V ±0.06V, V<sub>ss</sub>=0.0 V)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Standard Mode</th><th colspan="2">Fast Mode</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th><th>Min</th><th>Max</th></tr><tr><td>SCL clock frequency</td><td>f<sub>SCL</sub></td><td>SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17</td><td>C<sub>L</sub>=50pF, R=(V<sub>p</sub>/I<sub>OL</sub>)<sup>*1</sup></td><td>0</td><td>100</td><td>0</td><td>400</td><td>kHz</td><td></td></tr></table> <div>Error)</div> <div>*3: A high-speed mode I<sup>2</sup>C bus device can be used on a standard mode I<sup>2</sup>C bus system as long as the device satisfies the requirement of "t<sub>SUDAT</sub> ≥ 250 ns".</div> <div>Correct)</div> <div>*3: A fast mode I<sup>2</sup>C bus device can be used on a standard mode I<sup>2</sup>C bus system as long as the device satisfies the requirement of "t<sub>SUDAT</sub> ≥ 250 ns".</div>                                                                                                                                                                                                          | Parameter                                                                | Symbol             | Pin Name          | Conditions         | Standard Mode |                                                                                             | High-Speed Mode |                 | Unit    | Remarks | Min     | Max     | Min                                | Max               | SCL clock frequency | f <sub>SCL</sub> | SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17 | C <sub>L</sub> =50pF, R=(V <sub>p</sub> /I <sub>OL</sub> ) <sup>*1</sup> | 0                  | 100 | 0                                                                             | 400                | kHz               |                    | Parameter | Symbol | Pin Name | Conditions | Standard Mode |   | Fast Mode |        | Unit     | Remarks    | Min   | Max | Min | Max  | SCL clock frequency | f <sub>SCL</sub> | SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17 | C <sub>L</sub> =50pF, R=(V <sub>p</sub> /I <sub>OL</sub> ) <sup>*1</sup> | 0                                  | 100               | 0    | 400 | kHz                |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                          |                    |                   |                    | Conditions    | Standard Mode                                                                               |                 | High-Speed Mode |         |         | Unit    | Remarks |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Min                                                                      | Max                | Min               | Max                |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| SCL clock frequency                | f <sub>SCL</sub>                                                                | SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | C <sub>L</sub> =50pF, R=(V <sub>p</sub> /I <sub>OL</sub> ) <sup>*1</sup> | 0                  | 100               | 0                  | 400           | kHz                                                                                         |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Conditions                                                               | Standard Mode      |                   | Fast Mode          |               | Unit                                                                                        | Remarks         |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          | Min                | Max               | Min                | Max           |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| SCL clock frequency                | f <sub>SCL</sub>                                                                | SCL0, SCL1, SCL4, SCL8 to SCL12, SCL16 to SCL17                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | C <sub>L</sub> =50pF, R=(V <sub>p</sub> /I <sub>OL</sub> ) <sup>*1</sup> | 0                  | 100               | 0                  | 400           | kHz                                                                                         |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| 216                                | 9.Electric Characteristics<br>9.1.4.11.Low Voltage Detection (External Voltage) | <div>Added *5 and *5 sentences as below:</div> <div>Error)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td rowspan="4">Detection voltage (after trimming)</td><td rowspan="4">V<sub>DLAT</sub></td><td rowspan="2">VCC5</td><td rowspan="2">*1</td><td>3.86<sup>*3</sup></td><td>4.0<sup>*3</sup></td><td>4.14<sup>*3</sup></td><td rowspan="2">V</td><td rowspan="4">When power-supply voltage falls and detection level is set initially Typ±3.5%</td></tr><tr><td>2.51<sup>*4</sup></td><td>2.6<sup>*4</sup></td><td>2.69<sup>*4</sup></td></tr><tr><td rowspan="2">VCC3</td><td rowspan="2">*1</td><td>2.51</td><td>2.6</td><td>2.69</td><td rowspan="2">V</td></tr><tr></tr></table> <div>Correct)</div> <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td rowspan="4">Detection voltage (after trimming)</td><td rowspan="4">V<sub>DLAT</sub></td><td rowspan="2">VCC5</td><td rowspan="2">*1</td><td>3.86<sup>*3</sup></td><td>4.0<sup>*3</sup></td><td>4.14<sup>*3</sup></td><td rowspan="2">V</td><td rowspan="4">When power-supply voltage falls and detection level is set initially Typ±3.5%<sup>*5</sup></td></tr><tr><td>2.51<sup>*4</sup></td><td>2.6<sup>*4</sup></td><td>2.69<sup>*4</sup></td></tr><tr><td rowspan="2">VCC3</td><td rowspan="2">*1</td><td>2.51</td><td>2.6</td><td>2.69</td><td rowspan="2">V</td></tr><tr></tr></table> <div>*5: This detection voltage level setting is below the minimum operation assurance voltage (2.7V<sup>*4</sup> or 4.0V<sup>*3</sup>) .</div> <div>Between this detection voltage and the minimum operation assurance voltage,</div> <div>MCU functions are not guaranteed except for the low voltage detector.</div> <div>Note that although the detection level is below the minimum operation guarantee voltage,</div> <div>the LVD reset factor flag is set as the voltage drops below the detection level.</div> | Parameter                                                                | Symbol             | Pin Name          | Conditions         | Value         |                                                                                             |                 | Unit            | Remarks | Min     | Typ     | Max     | Detection voltage (after trimming) | V <sub>DLAT</sub> | VCC5                | *1               | 3.86 <sup>*3</sup>                              | 4.0 <sup>*3</sup>                                                        | 4.14 <sup>*3</sup> | V   | When power-supply voltage falls and detection level is set initially Typ±3.5% | 2.51 <sup>*4</sup> | 2.6 <sup>*4</sup> | 2.69 <sup>*4</sup> | VCC3      | *1     | 2.51     | 2.6        | 2.69          | V | Parameter | Symbol | Pin Name | Conditions | Value |     |     | Unit | Remarks             | Min              | Typ                                             | Max                                                                      | Detection voltage (after trimming) | V <sub>DLAT</sub> | VCC5 | *1  | 3.86 <sup>*3</sup> | 4.0 <sup>*3</sup> | 4.14 <sup>*3</sup> | V | When power-supply voltage falls and detection level is set initially Typ±3.5% <sup>*5</sup> | 2.51 <sup>*4</sup> | 2.6 <sup>*4</sup> | 2.69 <sup>*4</sup> | VCC3 | *1 | 2.51 | 2.6 | 2.69 | V |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                          |                    |                   |                    | Conditions    | Value                                                                                       |                 |                 |         | Unit    | Remarks |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Min                                                                      | Typ                | Max               |                    |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| Detection voltage (after trimming) | V <sub>DLAT</sub>                                                               | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *1                                                                       | 3.86 <sup>*3</sup> | 4.0 <sup>*3</sup> | 4.14 <sup>*3</sup> | V             | When power-supply voltage falls and detection level is set initially Typ±3.5%               |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          | 2.51 <sup>*4</sup> | 2.6 <sup>*4</sup> | 2.69 <sup>*4</sup> |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 | VCC3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *1                                                                       | 2.51               | 2.6               | 2.69               | V             |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          |                    |                   |                    |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| Parameter                          | Symbol                                                                          | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Conditions                                                               | Value              |                   |                    | Unit          | Remarks                                                                                     |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          | Min                | Typ               | Max                |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
| Detection voltage (after trimming) | V <sub>DLAT</sub>                                                               | VCC5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *1                                                                       | 3.86 <sup>*3</sup> | 4.0 <sup>*3</sup> | 4.14 <sup>*3</sup> | V             | When power-supply voltage falls and detection level is set initially Typ±3.5% <sup>*5</sup> |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          | 2.51 <sup>*4</sup> | 2.6 <sup>*4</sup> | 2.69 <sup>*4</sup> |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 | VCC3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | *1                                                                       | 2.51               | 2.6               | 2.69               | V             |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |
|                                    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          |                    |                   |                    |               |                                                                                             |                 |                 |         |         |         |         |                                    |                   |                     |                  |                                                 |                                                                          |                    |     |                                                                               |                    |                   |                    |           |        |          |            |               |   |           |        |          |            |       |     |     |      |                     |                  |                                                 |                                                                          |                                    |                   |      |     |                    |                   |                    |   |                                                                                             |                    |                   |                    |      |    |      |     |      |   |

| Page                                                                                        | Section                                                                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------|----------|------------|--------|------------------------------------------------|------------|---------------------------------------------|---------|-------|-----|-----|------------------------------------|--------------------|-------|----|--------|--------|--------|---|------------------------------------------------|
| 217                                                                                         | 9.Electric Characteristics<br>9.1.4.11.Low Voltage Detection (External Voltage) | Added *2 and *2 sentences as below:                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Detection voltage (after trimming)</td><td>V<sub>RDLAT</sub></td><td>VCC12</td><td>*1</td><td>0.7841</td><td>0.8125</td><td>0.8410</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5%</td></tr></table>    | Parameter          | Symbol | Pin Name | Conditions | Value  |                                                |            | Unit                                        | Remarks | Min   | Typ | Max | Detection voltage (after trimming) | V <sub>RDLAT</sub> | VCC12 | *1 | 0.7841 | 0.8125 | 0.8410 | V | When power-supply voltage falls<br>Typ±3.5%    |
|                                                                                             |                                                                                 | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |        |          |            | Symbol | Pin Name                                       | Conditions |                                             |         | Value |     |     | Unit                               | Remarks            |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Min                | Typ    | Max      |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                                              | V <sub>RDLAT</sub> | VCC12  | *1       | 0.7841     | 0.8125 | 0.8410                                         | V          | When power-supply voltage falls<br>Typ±3.5% |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Detection voltage (after trimming)</td><td>V<sub>RDLAT</sub></td><td>VCC12</td><td>*1</td><td>0.7841</td><td>0.8125</td><td>0.8410</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5% *2</td></tr></table> | Parameter          | Symbol | Pin Name | Conditions | Value  |                                                |            | Unit                                        | Remarks | Min   | Typ | Max | Detection voltage (after trimming) | V <sub>RDLAT</sub> | VCC12 | *1 | 0.7841 | 0.8125 | 0.8410 | V | When power-supply voltage falls<br>Typ±3.5% *2 |
|                                                                                             |                                                                                 | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |        |          |            | Symbol | Pin Name                                       | Conditions |                                             |         | Value |     |     | Unit                               | Remarks            |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Min                | Typ    | Max      |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| Detection voltage (after trimming)                                                          | V <sub>RDLAT</sub>                                                              | VCC12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | *1                 | 0.7841 | 0.8125   | 0.8410     | V      | When power-supply voltage falls<br>Typ±3.5% *2 |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| *2: This detection voltage level setting is below the minimum operation assurance voltage . |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| Between this detection voltage and the minimum operation assurance voltage,                 |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| MCU functions are not guaranteed except for the low voltage detector.                       |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| Note that although the detection level is below the minimum operation guarantee voltage,    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| the LVD reset factor flag is set as the voltage drops below the detection level.            |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| 218                                                                                         | 9.Electric Characteristics<br>9.1.4.12.Low Voltage Detection (Internal Voltage) | Added *2 and *2 sentences as below:                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Detection voltage (after trimming)</td><td>V<sub>RDLAT</sub></td><td>-</td><td>*1</td><td>0.844</td><td>0.875</td><td>0.906</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5%</td></tr></table>           | Parameter          | Symbol | Pin Name | Conditions | Value  |                                                |            | Unit                                        | Remarks | Min   | Typ | Max | Detection voltage (after trimming) | V <sub>RDLAT</sub> | -     | *1 | 0.844  | 0.875  | 0.906  | V | When power-supply voltage falls<br>Typ±3.5%    |
|                                                                                             |                                                                                 | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |        |          |            | Symbol | Pin Name                                       | Conditions |                                             |         | Value |     |     | Unit                               | Remarks            |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Min                | Typ    | Max      |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                                              | V <sub>RDLAT</sub> | -      | *1       | 0.844      | 0.875  | 0.906                                          | V          | When power-supply voltage falls<br>Typ±3.5% |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 | <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td>Detection voltage (after trimming)</td><td>V<sub>RDLAT</sub></td><td>-</td><td>*1</td><td>0.844</td><td>0.875</td><td>0.906</td><td>V</td><td>When power-supply voltage falls<br/>Typ±3.5% *2</td></tr></table>        | Parameter          | Symbol | Pin Name | Conditions | Value  |                                                |            | Unit                                        | Remarks | Min   | Typ | Max | Detection voltage (after trimming) | V <sub>RDLAT</sub> | -     | *1 | 0.844  | 0.875  | 0.906  | V | When power-supply voltage falls<br>Typ±3.5% *2 |
|                                                                                             |                                                                                 | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |        |          |            | Symbol | Pin Name                                       | Conditions |                                             |         | Value |     |     | Unit                               | Remarks            |       |    |        |        |        |   |                                                |
|                                                                                             |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Min                | Typ    | Max      |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| Detection voltage (after trimming)                                                          | V <sub>RDLAT</sub>                                                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | *1                 | 0.844  | 0.875    | 0.906      | V      | When power-supply voltage falls<br>Typ±3.5% *2 |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| *2: This detection voltage level setting is below the minimum operation assurance voltage . |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| Between this detection voltage and the minimum operation assurance voltage,                 |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| MCU functions are not guaranteed except for the low voltage detector.                       |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| Note that although the detection level is below the minimum operation guarantee voltage,    |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |
| the LVD reset factor flag is set as the voltage drops below the detection level.            |                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |        |          |            |        |                                                |            |                                             |         |       |     |     |                                    |                    |       |    |        |        |        |   |                                                |

| Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Section         | Change Results                                                                                                                            |                                       |        |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------|----------|------------|------------|-------|------|---------|------|---------|-------------------|-----|------|---------------------------------------|----|---|----|--|--------------------|-----|------|----|---|----|--|------------------|-------|----------|-----|---|----|--|-----------------------------|-------|----------|----|---|----|--|-----------------------------|-------|----------|----|---|----|--|---------------------|-----|----|----|---|----|--|----------------------|-----|----|----|---|----|--|-----------------|-------|----------|-----|---|----|--|--------------------|-------|----------|----|---|----|--|--------------------|-------|----------|-----|---|----|--|-----------------------|------|----|---|-----|----|--|------------------------|-----|----|----|---|----|--|
| 238                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.Electric      | Added AC specification of LCD bus I/F as below.                                                                                           |                                       |        |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| 239                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Characteristics |                                                                                                                                           |                                       |        |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| 240                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 9.1.4.21        | Correct)                                                                                                                                  |                                       |        |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| 241                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | LCDCbus I/F     | <b>9.1.4.21 LCDCbus I/F</b><br><br><b>(1) Intel-8080</b><br>(TA: Recommended operating conditions, Vcc3=3.3 V ±0.3V, VSS=DVSS=AVSS=0.0 V) |                                       |        |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td>Address hold time</td><td>tAH</td><td>D/C#</td><td rowspan="12">(CL = 20pF,<br/>IOL=-5mA,<br/>IOH=5mA),</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td>Address setup time</td><td>tAW</td><td>D/C#</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td>Write cycle time</td><td>tCYCW</td><td>CS#, WR#</td><td>100</td><td>-</td><td>ns</td><td></td></tr><tr><td>Write, Enable pulse H width</td><td>tCCHW</td><td>CS#, WR#</td><td>35</td><td>-</td><td>ns</td><td></td></tr><tr><td>Write, Enable pulse L width</td><td>tCCLW</td><td>CS#, WR#</td><td>35</td><td>-</td><td>ns</td><td></td></tr><tr><td>Write data set time</td><td>tDS</td><td>DB</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td>Write data hold time</td><td>tDH</td><td>DB</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td>Read cycle time</td><td>tCYCR</td><td>CS#, RD#</td><td>255</td><td>-</td><td>ns</td><td></td></tr><tr><td>Read pulse H width</td><td>tCCHR</td><td>CS#, RD#</td><td>90</td><td>-</td><td>ns</td><td></td></tr><tr><td>Read pulse L width</td><td>tCCLR</td><td>CS#, RD#</td><td>150</td><td>-</td><td>ns</td><td></td></tr><tr><td>Read data access time</td><td>tACC</td><td>DB</td><td>-</td><td>145</td><td>ns</td><td></td></tr><tr><td>Read data disable time</td><td>tOH</td><td>DB</td><td>15</td><td>-</td><td>ns</td><td></td></tr></table> |                 |                                                                                                                                           | Parameter                             | Symbol | Pin Name | Conditions | Value      |       | Unit | Remarks | Min  | Max     | Address hold time | tAH | D/C# | (CL = 20pF,<br>IOL=-5mA,<br>IOH=5mA), | 20 | - | ns |  | Address setup time | tAW | D/C# | 20 | - | ns |  | Write cycle time | tCYCW | CS#, WR# | 100 | - | ns |  | Write, Enable pulse H width | tCCHW | CS#, WR# | 35 | - | ns |  | Write, Enable pulse L width | tCCLW | CS#, WR# | 35 | - | ns |  | Write data set time | tDS | DB | 20 | - | ns |  | Write data hold time | tDH | DB | 20 | - | ns |  | Read cycle time | tCYCR | CS#, RD# | 255 | - | ns |  | Read pulse H width | tCCHR | CS#, RD# | 90 | - | ns |  | Read pulse L width | tCCLR | CS#, RD# | 150 | - | ns |  | Read data access time | tACC | DB | - | 145 | ns |  | Read data disable time | tOH | DB | 15 | - | ns |  |
| Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Symbol          | Pin Name                                                                                                                                  |                                       |        |          |            | Conditions | Value |      |         | Unit | Remarks |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                 |                                                                                                                                           | Min                                   | Max    |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Address hold time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | tAH             | D/C#                                                                                                                                      | (CL = 20pF,<br>IOL=-5mA,<br>IOH=5mA), | 20     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Address setup time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | tAW             | D/C#                                                                                                                                      |                                       | 20     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Write cycle time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | tCYCW           | CS#, WR#                                                                                                                                  |                                       | 100    | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Write, Enable pulse H width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | tCCHW           | CS#, WR#                                                                                                                                  |                                       | 35     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Write, Enable pulse L width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | tCCLW           | CS#, WR#                                                                                                                                  |                                       | 35     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Write data set time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | tDS             | DB                                                                                                                                        |                                       | 20     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Write data hold time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | tDH             | DB                                                                                                                                        |                                       | 20     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Read cycle time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | tCYCR           | CS#, RD#                                                                                                                                  |                                       | 255    | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Read pulse H width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | tCCHR           | CS#, RD#                                                                                                                                  |                                       | 90     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Read pulse L width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | tCCLR           | CS#, RD#                                                                                                                                  |                                       | 150    | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Read data access time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | tACC            | DB                                                                                                                                        |                                       | -      | 145      | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
| Read data disable time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | tOH             | DB                                                                                                                                        |                                       | 15     | -        | ns         |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                 |                                                                                                                                           |                                       |        |          |            |            |       |      |         |      |         |                   |     |      |                                       |    |   |    |  |                    |     |      |    |   |    |  |                  |       |          |     |   |    |  |                             |       |          |    |   |    |  |                             |       |          |    |   |    |  |                     |     |    |    |   |    |  |                      |     |    |    |   |    |  |                 |       |          |     |   |    |  |                    |       |          |    |   |    |  |                    |       |          |     |   |    |  |                       |      |    |   |     |    |  |                        |     |    |    |   |    |  |

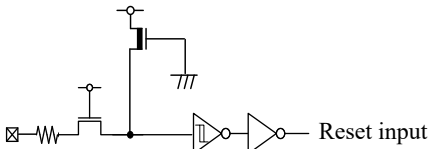
| Page                        | Section | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |            |    |                                       |       |     |      |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
|-----------------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----|---------------------------------------|-------|-----|------|---------|--|--|-----------|--|--------|----------|--|------------|-------|--|------|---------|-----|-----|-------------------|--|-----|------------|--|---------------------------------------|----|---|----|--|--------------------|--|-----|------------|--|----|---|----|--|------------------|--|-------|--------|--|-----|---|----|--|-----------------------------|--|-----|--------|--|----|---|----|--|-----------------------------|-----|--------|--|----|---|----|--|--|--|-----------------------------|--|-----|-------|--|--|----|---|----|--|---------------------|--|-----|----|--|----|---|----|--|----------------------|--|-----|----|--|----|---|----|--|-----------------|--|-------|--------|--|-----|---|----|--|--------------------|--|-----|--------|--|----|---|----|--|--------------------|--|-----|-------|--|-----|---|----|--|-----------------------|--|------|----|--|---|-----|----|--|------------------------|--|-----|----|--|----|---|----|--|
|                             |         | <div>(2) Motorola-6800</div> <div>(TA: Recommended operating conditions, Vcc3=3.3 V ±0.3V, VSS=DVSS=AVSS=0.0 V)</div> <table><tr><th colspan="2" rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th colspan="2" rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="2">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Max</th></tr><tr><td colspan="2">Address hold time</td><td>tAH</td><td colspan="2">D/C#, R/W#</td><td rowspan="4">(CL = 20pF,<br/>IOL=-5mA,<br/>IOH=5mA),</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Address setup time</td><td>tAW</td><td colspan="2">D/C#, R/W#</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Write cycle time</td><td>tCYCW</td><td colspan="2">CS#, E</td><td>100</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Write, Enable pulse H width</td><td>tEH</td><td colspan="2">CS#, E</td><td>35</td><td>-</td><td>ns</td><td></td></tr><tr><td>Write, Enable pulse H width</td><td>tEH</td><td>CS#, E</td><td></td><td>35</td><td>-</td><td>ns</td><td></td><td></td><td></td></tr><tr><td colspan="2">Write, Enable pulse L width</td><td>tEL</td><td colspan="2">CS#,E</td><td rowspan="8"></td><td>35</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Write data set time</td><td>tDS</td><td colspan="2">DB</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Write data hold time</td><td>tDH</td><td colspan="2">DB</td><td>20</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Read cycle time</td><td>tCYCR</td><td colspan="2">CS#, E</td><td>255</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Read pulse H width</td><td>tEH</td><td colspan="2">CS#, E</td><td>90</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Read pulse L width</td><td>tEL</td><td colspan="2">CS#,E</td><td>150</td><td>-</td><td>ns</td><td></td></tr><tr><td colspan="2">Read data access time</td><td>tACC</td><td colspan="2">DB</td><td>-</td><td>145</td><td>ns</td><td></td></tr><tr><td colspan="2">Read data disable time</td><td>tOH</td><td colspan="2">DB</td><td>15</td><td>-</td><td>ns</td><td></td></tr></table> |            |    |                                       |       |     |      |         |  |  | Parameter |  | Symbol | Pin Name |  | Conditions | Value |  | Unit | Remarks | Min | Max | Address hold time |  | tAH | D/C#, R/W# |  | (CL = 20pF,<br>IOL=-5mA,<br>IOH=5mA), | 20 | - | ns |  | Address setup time |  | tAW | D/C#, R/W# |  | 20 | - | ns |  | Write cycle time |  | tCYCW | CS#, E |  | 100 | - | ns |  | Write, Enable pulse H width |  | tEH | CS#, E |  | 35 | - | ns |  | Write, Enable pulse H width | tEH | CS#, E |  | 35 | - | ns |  |  |  | Write, Enable pulse L width |  | tEL | CS#,E |  |  | 35 | - | ns |  | Write data set time |  | tDS | DB |  | 20 | - | ns |  | Write data hold time |  | tDH | DB |  | 20 | - | ns |  | Read cycle time |  | tCYCR | CS#, E |  | 255 | - | ns |  | Read pulse H width |  | tEH | CS#, E |  | 90 | - | ns |  | Read pulse L width |  | tEL | CS#,E |  | 150 | - | ns |  | Read data access time |  | tACC | DB |  | - | 145 | ns |  | Read data disable time |  | tOH | DB |  | 15 | - | ns |  |
| Parameter                   |         | Symbol                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Pin Name   |    | Conditions                            | Value |     | Unit | Remarks |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
|                             |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |    |                                       | Min   | Max |      |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Address hold time           |         | tAH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | D/C#, R/W# |    | (CL = 20pF,<br>IOL=-5mA,<br>IOH=5mA), | 20    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Address setup time          |         | tAW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | D/C#, R/W# |    |                                       | 20    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Write cycle time            |         | tCYCW                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CS#, E     |    |                                       | 100   | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Write, Enable pulse H width |         | tEH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CS#, E     |    |                                       | 35    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Write, Enable pulse H width | tEH     | CS#, E                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |            | 35 | -                                     | ns    |     |      |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Write, Enable pulse L width |         | tEL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CS#,E      |    |                                       | 35    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Write data set time         |         | tDS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DB         |    |                                       | 20    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Write data hold time        |         | tDH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DB         |    |                                       | 20    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Read cycle time             |         | tCYCR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | CS#, E     |    |                                       | 255   | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Read pulse H width          |         | tEH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CS#, E     |    |                                       | 90    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Read pulse L width          |         | tEL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | CS#,E      |    |                                       | 150   | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Read data access time       |         | tACC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | DB         |    |                                       | -     | 145 | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
| Read data disable time      |         | tOH                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DB         |    |                                       | 15    | -   | ns   |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |
|                             |         | <div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |            |    |                                       |       |     |      |         |  |  |           |  |        |          |  |            |       |  |      |         |     |     |                   |  |     |            |  |                                       |    |   |    |  |                    |  |     |            |  |    |   |    |  |                  |  |       |        |  |     |   |    |  |                             |  |     |        |  |    |   |    |  |                             |     |        |  |    |   |    |  |  |  |                             |  |     |       |  |  |    |   |    |  |                     |  |     |    |  |    |   |    |  |                      |  |     |    |  |    |   |    |  |                 |  |       |        |  |     |   |    |  |                    |  |     |        |  |    |   |    |  |                    |  |     |       |  |     |   |    |  |                       |  |      |    |  |   |     |    |  |                        |  |     |    |  |    |   |    |  |

| Page    | Section                               | Change Results                                                                                         |                                                                                                 |                                    |                                                                                                      |
|---------|---------------------------------------|--------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|------------------------------------|------------------------------------------------------------------------------------------------------|
| Rev. *C |                                       |                                                                                                        |                                                                                                 |                                    |                                                                                                      |
| 1       | Features                              | Error)<br>□ General purpose I/O port : up to 146<br>Correct)<br>□ General purpose I/O port : up to 148 |                                                                                                 |                                    |                                                                                                      |
| 4       | 1.Overview<br>1.2 Document definition | Error)                                                                                                 |                                                                                                 |                                    |                                                                                                      |
|         |                                       | Document Type                                                                                          | Definition                                                                                      | Primary User                       | Document Code                                                                                        |
|         |                                       | S6J3310/20/30/40 Datasheet                                                                             | The function and its characteristics are specified quantitatively.                              | Investigator and hardware engineer | 002-10635                                                                                            |
|         |                                       | S6J3300 hardware manual                                                                                | The function and its operation of S6J3300 series are described.                                 | Software engineer                  | 002-10185                                                                                            |
|         |                                       | Traveo™ Platform hardware manual                                                                       | The function and its operation of CPU core platform are described.                              | Software engineer                  | 002-07884                                                                                            |
|         |                                       | Application note                                                                                       | The reference software, sample application, the reference board design and so on are explained. | Software and hardware engineer     | Under consideration                                                                                  |
|         |                                       | Correct)                                                                                               |                                                                                                 |                                    |                                                                                                      |
|         |                                       | Document Type                                                                                          | Definition                                                                                      | Primary User                       | Document Code                                                                                        |
|         |                                       | S6J3310/20/30/40 Datasheet                                                                             | The function and its characteristics are specified quantitatively.                              | Investigator and hardware engineer | 002-10635                                                                                            |
|         |                                       | S6J3300 hardware manual                                                                                | The function and its operation of S6J3300 series are described.                                 | Software engineer                  | 002-10185                                                                                            |
|         |                                       | Traveo™ Platform hardware manual                                                                       | The function and its operation of CPU core platform are described.                              | Software engineer                  | 002-07884                                                                                            |
|         |                                       | Application note                                                                                       | The reference software, sample application, the reference board design and so on are explained. | Software and hardware engineer     | 002-03898<br>002-04455<br>002-04446<br>002-09716<br>002-04452<br>002-04096<br>002-12061<br>002-02495 |

| Page | Section            | Change Results           |                               |         |         |         |                                                                |
|------|--------------------|--------------------------|-------------------------------|---------|---------|---------|----------------------------------------------------------------|
| 5    | 2.Function List    | Error)                   |                               |         |         |         |                                                                |
| 6    | 2.1 Product lineup | Function                 | S6J3310                       | S6J3320 | S6J3330 | S6J3340 | Remark                                                         |
|      |                    | Sound waveform generator | 1 unit x 5 outputs            |         |         |         | See 2.2.1                                                      |
|      |                    | I2S                      | 2 ch                          |         |         |         | One only supports an output as a function of the sound system. |
|      |                    | Correct)                 |                               |         |         |         |                                                                |
|      |                    | Function                 | S6J3310                       | S6J3320 | S6J3330 | S6J3340 | Remark                                                         |
|      |                    | Sound waveform generator | 1 unit x 5 outputs            |         | No      |         | See 2.2.1                                                      |
|      |                    | I2S                      | 2 ch                          |         | 1ch     |         | One only supports an output as a function of the sound system. |
| 5    | 2.Function List    | Error)                   |                               |         |         |         |                                                                |
| 6    | 2.1 Product lineup | Function                 | S6J3310                       | S6J3320 | S6J3330 | S6J3340 | Remark                                                         |
|      |                    | General Purpose I/O      | Option                        |         |         |         | See 2.2.2                                                      |
|      |                    | 12bit-A/D converter      | 2 unit - 48 input ports (Max) |         |         |         | See 2.2.2                                                      |
|      |                    | LCD controller           | 4COM x 32 SEG (Max)           |         |         |         | See 2.2.2                                                      |
|      |                    | Correct)                 |                               |         |         |         |                                                                |
|      |                    | Function                 | S6J3310                       | S6J3320 | S6J3330 | S6J3340 | Remark                                                         |
|      |                    | General Purpose I/O      | Option                        |         |         |         | See 2.2.3                                                      |
|      |                    | 12bit-A/D converter      | 2 unit - 48 input ports (Max) |         |         |         | See 2.2.3                                                      |
|      |                    | LCD controller           | 4COM x 32 SEG (Max)           |         |         |         | See 2.2.3                                                      |



| Page                 | Section                                                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
|----------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|---------|---------|---------|---|------------|------------|---------|---|------------|------------|---------|---|------------|------------|----------------|----------|---------|---------|---------|---|------------|------------|---|------------|---------|---|------------|---|------------|---------|---|------------|---|------------|
| 8                    | 2.Function List<br>2.2.2 ID                                     | <div>Error)<table><tr><th>Function Digit</th><th>Revision</th><th>Chip ID</th><th>JTAG ID</th></tr><tr><td>S,U,T,V</td><td>C</td><td>0x10122100</td><td>0x1000B5CF</td></tr><tr><td>A,C,E,G</td><td>C</td><td>0x10128100</td><td>0x1000B5CF</td></tr><tr><td>B,D,F,H</td><td>C</td><td>0x10120100</td><td>0x1000B5CF</td></tr></table></div> <div>Correct)<table><tr><th>Function Digit</th><th>Revision</th><th>Chip ID</th><th>JTAG ID</th></tr><tr><td rowspan="2">S,U,T,V</td><td>C</td><td>0x10122100</td><td rowspan="6">0x1000B5CF</td></tr><tr><td>D</td><td>0x10122200</td></tr><tr><td rowspan="2">A,C,E,G</td><td>C</td><td>0x10128100</td></tr><tr><td>D</td><td>0x10128200</td></tr><tr><td rowspan="2">B,D,F,H</td><td>C</td><td>0x10120100</td></tr><tr><td>D</td><td>0x10120200</td></tr></table></div> | Function Digit | Revision | Chip ID | JTAG ID | S,U,T,V | C | 0x10122100 | 0x1000B5CF | A,C,E,G | C | 0x10128100 | 0x1000B5CF | B,D,F,H | C | 0x10120100 | 0x1000B5CF | Function Digit | Revision | Chip ID | JTAG ID | S,U,T,V | C | 0x10122100 | 0x1000B5CF | D | 0x10122200 | A,C,E,G | C | 0x10128100 | D | 0x10128200 | B,D,F,H | C | 0x10120100 | D | 0x10120200 |
| Function Digit       | Revision                                                        | Chip ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | JTAG ID        |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| S,U,T,V              | C                                                               | 0x10122100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0x1000B5CF     |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| A,C,E,G              | C                                                               | 0x10128100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0x1000B5CF     |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| B,D,F,H              | C                                                               | 0x10120100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0x1000B5CF     |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| Function Digit       | Revision                                                        | Chip ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | JTAG ID        |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| S,U,T,V              | C                                                               | 0x10122100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0x1000B5CF     |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
|                      | D                                                               | 0x10122200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| A,C,E,G              | C                                                               | 0x10128100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
|                      | D                                                               | 0x10128200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| B,D,F,H              | C                                                               | 0x10120100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
|                      | D                                                               | 0x10120200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| 10                   | 3.Product Description<br>3.2 Product description                | <div>Error)<br/>Power Domain (PD)<br/>The product series supports the power off control of PD1, PD2 (including PD3 and 5) and PD6.</div> <div>Correct)<br/>Power Domain (PD)<br/>The product series supports the power off control of PD1, PD2 (including PD3 and 5), PD4_0, PD4_1 and PD6.</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| 17<br>18<br>19<br>20 | 4.Package and Pin Assignment<br>4.1.1 TEQFP-208 Pin Assignment  | <div>Error)<br/>4.1.1 TEQFP-208 Pin Assignment(S6J3310)<br/>Figure 4 1: TEQFP-208</div> <div>Correct)<br/>4.1.1 TEQFP-208 Pin Assignment<br/>Figure 4-1: TEQFP-208 (S6J331xKyz)<br/>Figure 4-2: TEQFP-208 (S6J332xKyz) add<br/>Figure 4-3: TEQFP-208 (S6J333xKyz) add<br/>Figure 4-4: TEQFP-208 (S6J334xKyz) add</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |
| 21<br>22<br>23<br>24 | 4. Package and Pin Assignment<br>4.1.2 TEQFP-176 Pin Assignment | <div>Error)<br/>4.1.2 TEQFP-176 Pin Assignment(S6J3310)<br/>Figure 4-2: TEQFP-176</div> <div>Correct)<br/>4.1.2 TEQFP-176 Pin Assignment<br/>Figure 4-5: TEQFP-176 (S6J331xJyz)<br/>Figure 4-6: TEQFP-176 (S6J332xJyz) add<br/>Figure 4-7: TEQFP-176 (S6J333xJyz) add<br/>Figure 4-8: TEQFP-176 (S6J334xJyz) add</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |          |         |         |         |   |            |            |         |   |            |            |         |   |            |            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |

| Page                 | Section                                                                  | Change Results                                                                                                                                                                                                                                                                                  |
|----------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 25<br>26<br>27<br>28 | 4.Package and<br>Pin Assignment<br>4.1.3 TEQFP-<br>144 Pin<br>Assignment | Error)<br>4.1.3 TEQFP-144 Pin Assignment(S6J3310)<br>Figure 4-2: TEQFP-144<br>Correct)<br>4.1.3 TEQFP-144 Pin Assignment<br>Figure 4-9: TEQFP-144 (S6J331xHyz)<br>Figure 4-10: TEQFP-144 (S6J332xHyz) add<br>Figure 4-11: TEQFP-144 (S6J333xHyz) add<br>Figure 4-12: TEQFP-144 (S6J334xHyz) add |
| 29                   | 4.Package and<br>Pin Assignment<br>4.2.1 TEQFP208                        | Error)<br>-<br>Correct)<br>Revised PKG figure.<br>Added PKG Code.                                                                                                                                                                                                                               |
| 30                   | 4.Package and<br>Pin Assignment<br>4.2.2 TEQFP176                        | Error)<br>-<br>Correct)<br>Revised PKG figure.<br>Added PKG Code.                                                                                                                                                                                                                               |
| 31<br>32             | 4.Package and<br>Pin Assignment<br>4.2.3 TEQFP144                        | Error)<br>-<br>Correct)<br>Revised PKG figure.<br>Added PKG Code.                                                                                                                                                                                                                               |
| 35                   | 5.IO Circuit<br>Type<br>5.1. I/O Circuit<br>Type                         | Error)<br>Type N<br><br>Correct)<br>Type N<br>                                                                            |

| Page                  | Section                                                            | Change Results        |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|-----------------------|--------------------------------------------------------------------|-----------------------|----------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|------|-----|-----------------------------|------------------------|--|
| 170                   | 9. Electric Characteristics<br>9.1.1 Absolute Maximum Rating       | Error)                |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    | Power consumption     | P <sub>D</sub>                                                       | -                                                                                                                                                    | 1500 | mW  |                             |                        |  |
|                       |                                                                    | Operating temperature | T <sub>A</sub>                                                       | -40                                                                                                                                                  | 105  | °C  | P <sub>D</sub> ≤2000mW      |                        |  |
|                       |                                                                    |                       |                                                                      | -40                                                                                                                                                  | 125  | °C  | P <sub>D</sub> ≤1200mW      |                        |  |
|                       |                                                                    | Correct)              |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    | Power consumption     | P <sub>D</sub>                                                       | -                                                                                                                                                    | 2000 | mW  | -40°C≤T <sub>A</sub> ≤105°C |                        |  |
|                       |                                                                    |                       |                                                                      | -                                                                                                                                                    | 1100 | mW  | -40°C≤T <sub>A</sub> ≤125°C |                        |  |
|                       |                                                                    | Operating temperature | T <sub>A</sub>                                                       | -40                                                                                                                                                  | 105  | °C  | P <sub>D</sub> ≤2000mW      |                        |  |
|                       |                                                                    |                       |                                                                      | -40                                                                                                                                                  | 125  | °C  | P <sub>D</sub> ≤1100mW      |                        |  |
|                       |                                                                    | 172                   | 9. Electric Characteristics<br>9.1.2 Recommended operating condition | Error)                                                                                                                                               |      |     |                             |                        |  |
| Operating temperature | T <sub>A</sub>                                                     |                       |                                                                      | -                                                                                                                                                    | -40  | 105 | °C                          | P <sub>D</sub> ≤2000mW |  |
|                       | T <sub>A</sub>                                                     |                       |                                                                      | -                                                                                                                                                    | -40  | 125 | °C                          | P <sub>D</sub> ≤1200mW |  |
| Correct)              |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
| Operating temperature | T <sub>A</sub>                                                     |                       |                                                                      | -                                                                                                                                                    | -40  | 105 | °C                          | P <sub>D</sub> ≤2000mW |  |
|                       | T <sub>A</sub>                                                     |                       |                                                                      | -                                                                                                                                                    | -40  | 125 | °C                          | P <sub>D</sub> ≤1100mW |  |
| 172                   | 9.Electric Characteristics<br>9.1.2Recommended operating condition |                       |                                                                      | Error)                                                                                                                                               |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      | S6J33xxxSC, S6J33xxxUC, S6J33xxxTC, S6J33xxxVC,<br>S6J33xxxBC, S6J33xxxDC, S6J33xxxFC, S6J33xxxHC,<br>S6J33xxxAC, S6J33xxxCC, S6J33xxxEC, S6J33xxxGC |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      | Correct)                                                                                                                                             |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      | S6J33xxxSx, S6J33xxxUx, S6J33xxxTx, S6J33xxxVx,<br>S6J33xxxBx, S6J33xxxDx, S6J33xxxFx, S6J33xxxHx,<br>S6J33xxxAx, S6J33xxxCx, S6J33xxxEx, S6J33xxxGx |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |
|                       |                                                                    |                       |                                                                      |                                                                                                                                                      |      |     |                             |                        |  |

| Page | Section                                                              | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------|----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 173  | 9. Electric Characteristics<br>9.1.2 Recommended operating condition | <p>Error)</p> <p>LVDL0</p> <p>LVDL1</p> <p>LVDL2</p> <p>LVDH0</p> <p>LVDH1</p> <p>LVDH2</p> <p>Detection voltage of the external low voltage detection reset (initial) is <math>2.6V \pm 3.5\% \times 2 \times 3</math> or <math>4.0V \pm 3.5\% \times 1</math>. This detection voltage level setting is below the minimum operation assurance voltage (<math>2.7V \times 2 \times 3</math> or <math>4.0V \times 1</math>).</p> <p>Between this detection voltage and the minimum operation assurance voltage, MCU functions are not guaranteed except for the low voltage detector.</p> <p>Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level.</p> <p>Correct)</p> <p>LVDL0</p> <p>LVDL1</p> <p>LVDL2</p> <p>LVDH0</p> <p>LVDH1</p> <p>LVDH2</p> <p>When it is used outside recommended range (this is the range of guaranteed operation), contact your sales representative. The initial detection voltage of the external low voltage detection is <math>2.6V \pm 3.5\% \times 2 \times 3</math> (LVDH1/LVDH2) or <math>0.8V \pm 3.5\%</math> (LVDL2).</p> <p>This LVD setting and internal LVD (LVDL0/LVDL1) cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage.</p> |

| Page | Section                                                 | Change Results    |      |            |   |     |     |    |                                                                                                                                                                |
|------|---------------------------------------------------------|-------------------|------|------------|---|-----|-----|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 181  | 9. Electric Characteristics<br>9.1.3 DC characteristics | Error)            |      |            |   |     |     |    |                                                                                                                                                                |
| 182  |                                                         | I <sub>CCT5</sub> | VCC5 | Timer mode | - | 370 | 810 | μA | T <sub>A</sub> =25°C. Power only supplies to Backup RAM and system controllers. When using 4MHz crystal for main oscillator.                                   |
|      |                                                         |                   |      |            | - | 360 | 780 | μA | T <sub>A</sub> =25°C. Power only supplies to Backup RAM and system controllers. When shutting down 16kB Backup RAM and using 4MHz crystal for main oscillator. |
|      |                                                         | I <sub>CCH5</sub> |      | Stop mode  | - | 100 | 400 | μA | T <sub>A</sub> =25°C. Power only supplies to Backup RAM and system controllers.                                                                                |
|      |                                                         | Correct)          |      |            |   |     |     |    |                                                                                                                                                                |
|      |                                                         | I <sub>CCT5</sub> | VCC5 | Timer mode | - | 370 | 810 | μA | T <sub>A</sub> =25°C. 4MHz crystal for main oscillator<br>PD1=ON, PD4_0=ON, PD4_1=ON                                                                           |
|      |                                                         |                   |      |            | - | 360 | 780 | μA | T <sub>A</sub> =25°C. 4MHz crystal for main oscillator.<br>PD1=ON, PD4_0=ON or PD4_1=ON                                                                        |
|      |                                                         |                   |      |            | - | 350 | 750 | μA | T <sub>A</sub> =25°C. 4MHz crystal for main oscillator.<br>PD1=ON                                                                                              |
|      |                                                         |                   |      |            | - | 450 | 890 | μA | T <sub>A</sub> =25°C. 8MHz crystal for main oscillator<br>PD1=ON, PD4_0=ON, PD4_1=ON                                                                           |
|      |                                                         |                   |      |            | - | 440 | 860 | μA | T <sub>A</sub> =25°C. 8MHz crystal for main oscillator.<br>PD1=ON, PD4_0=ON or PD4_1=ON                                                                        |
|      |                                                         |                   |      |            | - | 430 | 830 | μA | T <sub>A</sub> =25°C. 8MHz crystal for main oscillator.<br>PD1=ON                                                                                              |
|      |                                                         |                   |      |            | - | 110 | 430 | μA | T <sub>A</sub> =25°C. 32kHz crystal for sub oscillator<br>PD1=ON, PD4_0=ON, PD4_1=ON                                                                           |
|      |                                                         |                   |      |            | - | 100 | 400 | μA | T <sub>A</sub> =25°C. 32kHz crystal for sub oscillator.<br>PD1=ON, PD4_0=ON or PD4_1=ON                                                                        |
|      |                                                         |                   |      |            | - | 90  | 370 | μA | T <sub>A</sub> =25°C. 32kHz crystal for sub oscillator.<br>PD1=ON                                                                                              |
|      |                                                         | I <sub>CCH5</sub> | VCC5 | Stop mode  | - | 100 | 400 | μA | T <sub>A</sub> =25°C.<br>PD1=ON, PD4_0=ON, PD4_1=ON                                                                                                            |
|      |                                                         |                   |      |            | - | 90  | 370 | μA | T <sub>A</sub> =25°C.<br>PD1=ON, PD4_0=ON or PD4_1=ON                                                                                                          |
|      |                                                         |                   |      |            | - | 80  | 340 | μA | T <sub>A</sub> =25°C.<br>PD1=ON                                                                                                                                |

| Page           | Section                                                                                                  | Change Results                                                                                                                                                                                                                                                                                                                     |                |     |      |   |     |    |   |    |    |                |                  |      |   |     |   |   |    |    |
|----------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----|------|---|-----|----|---|----|----|----------------|------------------|------|---|-----|---|---|----|----|
| 191            | 9. Electric Characteristics<br>9.1.4.5 Power-on Conditions                                               | Error)<br><table><tr><td>Power off time</td><td></td><td>VCC5</td><td>-</td><td>100</td><td>-</td><td>-</td><td>μs</td><td>*2</td></tr></table><br>Correct)<br><table><tr><td>Power off time</td><td>t<sub>OFF</sub></td><td>VCC5</td><td>-</td><td>100</td><td>-</td><td>-</td><td>μs</td><td>*2</td></tr></table>                | Power off time |     | VCC5 | - | 100 | -  | - | μs | *2 | Power off time | t <sub>OFF</sub> | VCC5 | - | 100 | - | - | μs | *2 |
| Power off time |                                                                                                          | VCC5                                                                                                                                                                                                                                                                                                                               | -              | 100 | -    | - | μs  | *2 |   |    |    |                |                  |      |   |     |   |   |    |    |
| Power off time | t <sub>OFF</sub>                                                                                         | VCC5                                                                                                                                                                                                                                                                                                                               | -              | 100 | -    | - | μs  | *2 |   |    |    |                |                  |      |   |     |   |   |    |    |
| 226<br>253     | 9.Electric Characteristics<br>9.1.4.11Low Voltage Detection<br>(External Voltage)<br>9.1.5 A/D converter | Error)<br>S6J33xxxSC, S6J33xxxUC, S6J33xxxTC, S6J33xxxVC,<br>S6J33xxxAC, S6J33xxxBC, S6J33xxxCC, S6J33xxxDC,<br>S6J33xxxEC, S6J33xxxFC, S6J33xxxGC, S6J33xxxHC<br>Correct)<br>S6J33xxxSx, S6J33xxxUx, S6J33xxxTx, S6J33xxxVx,<br>S6J33xxxAx, S6J33xxxBx, S6J33xxxCx, S6J33xxxDx,<br>S6J33xxxGx, S6J33xxxFx, S6J33xxxGx, S6J33xxxHx |                |     |      |   |     |    |   |    |    |                |                  |      |   |     |   |   |    |    |

| Page | Section                                                                          | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |          |            |                    |                   |                    |      |                                                                      |
|------|----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|------------|--------------------|-------------------|--------------------|------|----------------------------------------------------------------------|
| 226  | 9. Electric Characteristics<br>9.1.4.11 Low Voltage Detection (External Voltage) | Low-voltage detection (external low-voltage detection)<br>Error)                                                                                                                                                                                                                                                                                                                                                                                                      |                   |          |            |                    |                   |                    |      |                                                                      |
|      |                                                                                  | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Symbol            | Pin Name | Conditions | Value              |                   |                    | Unit | Remarks                                                              |
|      |                                                                                  | Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                                                                  | V <sub>DP5</sub>  | VCC5     | -          | Min                | Typ               | Max                | V    |                                                                      |
|      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |          |            | 3.5 <sup>*3</sup>  | -                 | 5.5 <sup>*3</sup>  |      |                                                                      |
|      |                                                                                  | Detection voltage (before trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                   | V <sub>DLBT</sub> | VCC5     | *1         | 3.6 <sup>*3</sup>  | 4.0 <sup>*3</sup> | 4.4 <sup>*3</sup>  | V    | When power-supply voltage falls and detection level is set initially |
|      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   | VCC3     | *1         | 2.3                | 2.6               | 2.9                | V    |                                                                      |
|      |                                                                                  | Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                    | V <sub>DLAT</sub> | VCC5     | *1         | 3.86 <sup>*3</sup> | 4.0 <sup>*3</sup> | 4.14 <sup>*3</sup> | V    | When power-supply voltage falls and detection level is set initially |
|      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   | VCC3     | *1         | 2.51               | 2.6               | 2.69               | V    |                                                                      |
|      |                                                                                  | *5: This detection voltage level setting is below the minimum operation assurance voltage (2.7V <sup>*4</sup> or 4.0V <sup>*3</sup> ). Between this detection voltage and the minimum operation assurance voltage, MCU functions are not guaranteed except for the low voltage detector.<br>Note that although the detection level is below the minimum operation guarantee voltage, the LVD reset factor flag is set as the voltage drops below the detection level. |                   |          |            |                    |                   |                    |      |                                                                      |
|      |                                                                                  | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                   |          |            |                    |                   |                    |      |                                                                      |
|      |                                                                                  | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Symbol            | Pin Name | Conditions | Value              |                   |                    | Unit | Remarks                                                              |
|      |                                                                                  | Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                                                                  | V <sub>DP5</sub>  | VCC5     | -          | Min                | Typ               | Max                | V    |                                                                      |
|      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   |          |            | 3.5 <sup>*3</sup>  | -                 | 5.5 <sup>*3</sup>  |      |                                                                      |
|      |                                                                                  | Detection voltage (before trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                   | V <sub>DLBT</sub> | VCC5     | *1         | 3.6 <sup>*3</sup>  | 4.0 <sup>*3</sup> | 4.4 <sup>*3</sup>  | V    | When power-supply voltage falls and detection level is set initially |
|      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   | VCC3     | *1         | 2.3                | 2.6               | 2.9                | V    |                                                                      |
|      |                                                                                  | Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                                                                    | V <sub>DLAT</sub> | VCC5     | *1         | 3.86 <sup>*3</sup> | 4.0 <sup>*3</sup> | 4.14 <sup>*3</sup> | V    | When power-supply voltage falls and detection level is set initially |
|      |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                   | VCC3     | *1         | 2.51               | 2.6               | 2.69               | V    |                                                                      |
|      |                                                                                  | *5: These LVD settings cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage(2.7V).                                                                                                                                                                                                                                        |                   |          |            |                    |                   |                    |      |                                                                      |

| Page                                                                                                                                                                                                                                         | Section                                                                          | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                  |                    |                  |            |        |        |        |                                             |                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------|--------|--------|--------|---------------------------------------------|-----------------------------------------------------------|
| 227                                                                                                                                                                                                                                          | 9. Electric Characteristics<br>9.1.4.11 Low Voltage Detection (External Voltage) | Low-voltage detection (1.15 V power supply low-voltage detection)                                                                                                                                                                                                                                                                                                                                                                               |                    |                  |            |        |        |        |                                             |                                                           |
|                                                                                                                                                                                                                                              |                                                                                  | Error)                                                                                                                                                                                                                                                                                                                                                                                                                                          |                    |                  |            |        |        |        |                                             |                                                           |
|                                                                                                                                                                                                                                              |                                                                                  | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                       | Symbol             | Pin Name         | Conditions | Value  |        |        | Unit                                        | Remarks                                                   |
|                                                                                                                                                                                                                                              |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |            | Min    | Typ    | Max    |                                             |                                                           |
|                                                                                                                                                                                                                                              |                                                                                  | Supply voltage range                                                                                                                                                                                                                                                                                                                                                                                                                            | V <sub>RDP12</sub> | VCC12            | -          | 1.09   | -      | 1.21   | V                                           |                                                           |
|                                                                                                                                                                                                                                              |                                                                                  | Detection voltage (before trimming)                                                                                                                                                                                                                                                                                                                                                                                                             | V <sub>RDLBT</sub> | VCC12            | *1         | 0.7125 | 0.8125 | 0.9125 | V                                           | When power-supply voltage falls                           |
|                                                                                                                                                                                                                                              |                                                                                  | Detection voltage (after trimming)                                                                                                                                                                                                                                                                                                                                                                                                              | V <sub>RDLAT</sub> | VCC12            | *1         | 0.7841 | 0.8125 | 0.841  | V                                           | When power-supply voltage falls<br>Typ±3.5% <sup>*2</sup> |
|                                                                                                                                                                                                                                              |                                                                                  | <sup>*2</sup> : This detection voltage level setting is below the minimum operation assurance voltage .<br>Between this detection voltage and the minimum operation assurance voltage,<br>MCU functions are not guaranteed except for the low voltage detector.<br>Note that although the detection level is below the minimum operation guarantee voltage,<br>the LVD reset factor flag is set as the voltage drops below the detection level. |                    |                  |            |        |        |        |                                             |                                                           |
|                                                                                                                                                                                                                                              |                                                                                  | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                        |                    |                  |            |        |        |        |                                             |                                                           |
|                                                                                                                                                                                                                                              |                                                                                  | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                       | Symbol             | Pin Name         | Conditions | Value  |        |        | Unit                                        | Remarks                                                   |
| Min                                                                                                                                                                                                                                          | Typ                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |            | Max    |        |        |                                             |                                                           |
|                                                                                                                                                                                                                                              | Supply voltage range                                                             | V <sub>RDP12</sub>                                                                                                                                                                                                                                                                                                                                                                                                                              | VCC12              | -                | 1.09       | -      | 1.21   | V      |                                             |                                                           |
|                                                                                                                                                                                                                                              | Detection voltage (before trimming)                                              | V <sub>RDLBT</sub>                                                                                                                                                                                                                                                                                                                                                                                                                              | VCC12              | *1 <sup>*2</sup> | 0.7125     | 0.8125 | 0.9125 | V      | When power-supply voltage falls             |                                                           |
|                                                                                                                                                                                                                                              | Detection voltage (after trimming)                                               | V <sub>RDLAT</sub>                                                                                                                                                                                                                                                                                                                                                                                                                              | VCC12              | *1 <sup>*2</sup> | 0.7841     | 0.8125 | 0.841  | V      | When power-supply voltage falls<br>Typ±3.5% |                                                           |
| <sup>*2</sup> : These LVD settings cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage (1.09V). |                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |            |        |        |        |                                             |                                                           |



| Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Section                                                                          | Change Results                                                             |                    |          |            |       |       |       |      |                                                              |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------|--------------------|----------|------------|-------|-------|-------|------|--------------------------------------------------------------|
| 228                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 9. Electric Characteristics<br>9.1.4.12 Low Voltage Detection (Internal Voltage) | Low-voltage detection (internal low-voltage detection for LVDL1)<br>Error) |                    |          |            |       |       |       |      |                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  | Parameter                                                                  | Symbol             | Pin Name | Conditions | Value |       |       | Unit | Remarks                                                      |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  |                                                                            |                    |          |            | Min   | Typ   | Max   |      |                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  | Supply voltage range                                                       | V <sub>RDP5</sub>  | -        | -          | 1.05  | -     | 1.21  | V    |                                                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  | Detection voltage                                                          | V <sub>RDLBT</sub> | -        | *1         | 0.775 | 0.875 | 0.975 | V    | When power-supply voltage falls <sup>*3</sup>                |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  | Detection voltage                                                          | V <sub>RDLAT</sub> | -        | *1         | 0.844 | 0.875 | 0.906 | V    | When power-supply voltage falls<br>Typ±3.5% <sup>*2 *3</sup> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  | Hysteresis width                                                           | V <sub>RHYS</sub>  | -        | -          | -     | 75    | -     | mV   | When power-supply voltage rises                              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                  | Low-voltage detection time                                                 | TRd                | -        | -          | -     | -     | 30    | μs   | <sup>*4</sup>                                                |
| <p><sup>*2</sup>: This detection voltage level setting is below the minimum operation assurance voltage .<br/>Between this detection voltage and the minimum operation assurance voltage,<br/>MCU functions are not guaranteed except for the low voltage detector.<br/>Note that although the detection level is below the minimum operation guarantee voltage,<br/>the LVD reset factor flag is set as the voltage drops below the detection level.</p> <p><sup>*3</sup>: This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed<br/>MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation<br/>voltage.</p> <p><sup>*4</sup>: After the brown-out event where the voltage level dips below the detection threshold for less than this<br/>time, the detection may occur or be canceled.</p> |                                                                                  |                                                                            |                    |          |            |       |       |       |      |                                                              |

| Page                                                                                                                                                                                                           | Section                                                              | Change Results                         |                    |          |            |       |       |       |      |                                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|----------------------------------------|--------------------|----------|------------|-------|-------|-------|------|---------------------------------------------|
|                                                                                                                                                                                                                |                                                                      | Correct)                               |                    |          |            |       |       |       |      |                                             |
|                                                                                                                                                                                                                |                                                                      | Parameter                              | Symbol             | Pin Name | Conditions | Value |       |       | Unit | Remarks                                     |
|                                                                                                                                                                                                                |                                                                      |                                        |                    |          |            | Min   | Typ   | Max   |      |                                             |
|                                                                                                                                                                                                                |                                                                      | Supply voltage range                   | V <sub>RDP5</sub>  | -        | -          | 1.05  | -     | 1.21  | V    |                                             |
|                                                                                                                                                                                                                |                                                                      | Detection voltage (before trimming)    | V <sub>RDLBT</sub> | -        | *1 *2      | 0.775 | 0.875 | 0.975 | V    | When power-supply voltage falls             |
|                                                                                                                                                                                                                |                                                                      | Detection voltage (after trimming)     | V <sub>RDLAT</sub> | -        | *1 *2      | 0.844 | 0.875 | 0.906 | V    | When power-supply voltage falls<br>Typ±3.5% |
|                                                                                                                                                                                                                |                                                                      | Hysteresis width                       | V <sub>RHYS</sub>  | -        | -          | -     | 75    | -     | mV   | When power-supply voltage rises             |
|                                                                                                                                                                                                                |                                                                      | Low-voltage detection time             | TRd                | -        | -          | -     | -     | 30    | μs   | *3                                          |
| *2: This LVD cannot be used to reliably generate a reset before voltage dips below minimum guaranteed MCU operation voltage, as these detection levels are below the minimum guaranteed MCU operation voltage. |                                                                      |                                        |                    |          |            |       |       |       |      |                                             |
| *3: After the brown-out event where the voltage level dips below the detection threshold for less than this time, the detection may occur or be canceled.                                                      |                                                                      |                                        |                    |          |            |       |       |       |      |                                             |
| 248                                                                                                                                                                                                            | 9. Electric Characteristics<br>9.1.4.21 LCD bus I/F                  | Error)<br>-<br>Correct)<br>All change  |                    |          |            |       |       |       |      |                                             |
| 249<br>250<br>251<br>252                                                                                                                                                                                       | 9. Electric Characteristics<br>9.1.4.22 Pow<br>er and Reset Sequence | Error)<br>-<br>Correct)<br>Newly added |                    |          |            |       |       |       |      |                                             |

| Page            | Section                             | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
|-----------------|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|---------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|-----------------|-------------------------------------|
| 263             | 11. Ordering Information            | Error) <table><tr><th>Part Number</th><th>Package</th></tr><tr><td>S6J331EKCC*****</td><td>208-pin plastic TEQFP<br/>(TEQFP208)</td></tr><tr><td>S6J331EKBC*****</td><td>208-pin plastic TEQFP<br/>(TEQFP208)</td></tr><tr><td>S6J331EKAC*****</td><td>208-pin plastic TEQFP<br/>(TEQFP208)</td></tr><tr><td>S6J331EJCC*****</td><td>176-pin plastic TEQFP<br/>(TEQFP176)</td></tr><tr><td>S6J332EJCC*****</td><td>176-pin plastic TEQFP<br/>(TEQFP176)</td></tr><tr><td>S6J331EJAC*****</td><td>176-pin plastic TEQFP<br/>(TEQFP176)</td></tr><tr><td>S6J332EJAC*****</td><td>176-pin plastic TEQFP<br/>(TEQFP176)</td></tr><tr><td>S6J332EHSC*****</td><td>144-pin plastic TEQFP<br/>(TEQFP144)</td></tr><tr><td>S6J332EHSC*****</td><td>144-pin plastic TEQFP<br/>(TEQFP144)</td></tr></table> | Part Number | Package | S6J331EKCC***** | 208-pin plastic TEQFP<br>(TEQFP208) | S6J331EKBC***** | 208-pin plastic TEQFP<br>(TEQFP208) | S6J331EKAC***** | 208-pin plastic TEQFP<br>(TEQFP208) | S6J331EJCC***** | 176-pin plastic TEQFP<br>(TEQFP176) | S6J332EJCC***** | 176-pin plastic TEQFP<br>(TEQFP176) | S6J331EJAC***** | 176-pin plastic TEQFP<br>(TEQFP176) | S6J332EJAC***** | 176-pin plastic TEQFP<br>(TEQFP176) | S6J332EHSC***** | 144-pin plastic TEQFP<br>(TEQFP144) | S6J332EHSC***** | 144-pin plastic TEQFP<br>(TEQFP144) |
| Part Number     | Package                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J331EKCC***** | 208-pin plastic TEQFP<br>(TEQFP208) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J331EKBC***** | 208-pin plastic TEQFP<br>(TEQFP208) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J331EKAC***** | 208-pin plastic TEQFP<br>(TEQFP208) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J331EJCC***** | 176-pin plastic TEQFP<br>(TEQFP176) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J332EJCC***** | 176-pin plastic TEQFP<br>(TEQFP176) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J331EJAC***** | 176-pin plastic TEQFP<br>(TEQFP176) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J332EJAC***** | 176-pin plastic TEQFP<br>(TEQFP176) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J332EHSC***** | 144-pin plastic TEQFP<br>(TEQFP144) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |
| S6J332EHSC***** | 144-pin plastic TEQFP<br>(TEQFP144) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |             |         |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |                 |                                     |

| Page            | Section                                   | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
|-----------------|-------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|----------------|-----------------------------------|-----------------|-----------------------------------|----------------|-----------------------------------|-----------------|-----------------------------------|-----------------|-----------------------------------|----------------|-----------------------------------|-----------------|-------------------------------------------|
|                 |                                           | <div>Correct)</div> <table><tr><th>Part Number *1</th><th>Package</th></tr><tr><td>S6J331EKEx*****</td><td>208-pin plastic TEQFP<br/>(LEW208)</td></tr><tr><td>S6J332CKSx*****</td><td>208-pin plastic TEQFP<br/>(LEW208)</td></tr><tr><td>S6J334CKSx*****</td><td>208-pin plastic TEQFP<br/>(LEW208)</td></tr><tr><td>S6J331EJAx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J332CJBx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J332CJT*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J332EJBx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334BJDx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334CJEx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334CJT*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334DJEx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334DJT*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334EJAx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334EJEx*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334EJT*****</td><td>176-pin plastic TEQFP<br/>(LEW176)</td></tr><tr><td>S6J334CHBx*****</td><td>144-pin plastic TEQFP<br/>(LEX144, LEK144)</td></tr></table> <div>*1: x is selected from the following parameter.<br/>x : C, D (Revision)</div> | Part Number *1 | Package | S6J331EKEx***** | 208-pin plastic TEQFP<br>(LEW208) | S6J332CKSx***** | 208-pin plastic TEQFP<br>(LEW208) | S6J334CKSx***** | 208-pin plastic TEQFP<br>(LEW208) | S6J331EJAx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J332CJBx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J332CJT***** | 176-pin plastic TEQFP<br>(LEW176) | S6J332EJBx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334BJDx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334CJEx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334CJT***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334DJEx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334DJT***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334EJAx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334EJEx***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334EJT***** | 176-pin plastic TEQFP<br>(LEW176) | S6J334CHBx***** | 144-pin plastic TEQFP<br>(LEX144, LEK144) |
| Part Number *1  | Package                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J331EKEx***** | 208-pin plastic TEQFP<br>(LEW208)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J332CKSx***** | 208-pin plastic TEQFP<br>(LEW208)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334CKSx***** | 208-pin plastic TEQFP<br>(LEW208)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J331EJAx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J332CJBx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J332CJT*****  | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J332EJBx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334BJDx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334CJEx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334CJT*****  | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334DJEx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334DJT*****  | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334EJAx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334EJEx***** | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334EJT*****  | 176-pin plastic TEQFP<br>(LEW176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| S6J334CHBx***** | 144-pin plastic TEQFP<br>(LEX144, LEK144) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| Rev. *E         |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |
| 6               | 2. Function List<br>2.1 Function list     | <div>Revised the below:</div> <div>CAN-FD RAM (ECC supported)<br/>Error)<br/>16KB/ch<br/>It equivalents to 128 message buffer per channel of CCAN module</div> <div>Correct)<br/>16KB/ch<br/>It equivalents to 128 message buffer per channel of MCAN module</div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |         |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                   |                |                                   |                 |                                   |                 |                                   |                |                                   |                 |                                           |

| Page | Section                                 | Change Results                                                                                                                                |  |  |  |  |  |
|------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 12   | 3. Product Description                  | Error)                                                                                                                                        |  |  |  |  |  |
|      | 3.2 Product description                 | Correct)                                                                                                                                      |  |  |  |  |  |
| 61   | 7. Port configuration                   | Error)                                                                                                                                        |  |  |  |  |  |
|      | 7.1 Resource Input Configuration Module | -<br>Correct)<br>The Resource which are available through only one port does not have the multiplexer implemented i.e. No RIC_RESIN register. |  |  |  |  |  |
| 169  | 9. Electric Characteristics             | Error)                                                                                                                                        |  |  |  |  |  |
|      | 9.1.1 Absolute Maximum Rating           | Correct)                                                                                                                                      |  |  |  |  |  |
| 169  | 9. Electric Characteristics             | Error)                                                                                                                                        |  |  |  |  |  |
|      | 9.1.1 Absolute Maximum Rating           | Correct)                                                                                                                                      |  |  |  |  |  |
| 169  | 9. Electric Characteristics             | Error)                                                                                                                                        |  |  |  |  |  |
|      | 9.1.1 Absolute Maximum Rating           | Correct)                                                                                                                                      |  |  |  |  |  |
| 170  | 9. Electric Characteristics             | Error)                                                                                                                                        |  |  |  |  |  |
|      | 9.1.1 Absolute Maximum Rating           | -<br>Correct)                                                                                                                                 |  |  |  |  |  |

| Page | Section                         | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 172  | 9. Electric                     | Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 173  | Characteristics                 | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 174  | 9. 1 Electric                   | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|      | Characteristics                 | Newly added<br>*B Relevant pins: All general-purpose ports and analog input pins<br>*C Relevant pins: All general-purpose ports and analog input pins                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 176  | 9. Electric                     | Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|      | Characteristics                 | - In the case of use in $VCC5 = AVCC5 = DVCC$ of conditions, please launch the power supply in the following sequence.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|      | 9.1.2                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|      | Recommended operating condition | Required power supply sequence is the following:<br>$VCC5 \rightarrow [DVCC \text{ or } VCC53 \text{ or } AVCC5 \text{ or } VCC3 \text{ or } AVCC3\_DAC] \rightarrow VCC12$<br>Note that power supplies inside "[ ]" can be turned on in arbitrary order.<br>Corresponding Part number is S6J33xxxSC or S6J33xxxUC or S6J33xxxTC or S6J33xxxVC or S6J33xxxBC or S6J33xxxDC or S6J33xxxFC or S6J33xxxHC.<br>- In the case of use in $VCC5 = AVCC5 < DVCC$ of conditions, please launch the power supply in the following sequence.<br>Required power supply sequence is the following:<br>$VCC5 \rightarrow DVCC \rightarrow [VCC53 \text{ or } AVCC5 \text{ or } VCC3 \text{ or } AVCC3\_DAC] \rightarrow VCC12$ .<br>Note that power supplies inside "[ ]" can be turned on in arbitrary order.<br>Corresponding Part number is S6J33xxxAC or S6J33xxxCC or S6J33xxxEC or S6J33xxxGC.<br><br>Correct)<br>- Required power supply sequence is the following:<br>$\{VCC5 \rightarrow AVCC5\} \rightarrow [DVCC, VCC12, VCC3, AVCC3\_DAC]$<br>Note that power supplies inside "[ ]" can be turned on in arbitrary order and "{ }" can be turned on in shown sequence or simultaneously. |

| Page | Section                                                              | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------|----------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 177  | 9. Electric Characteristics<br>9.1.2 Recommended operating condition | <p>Error)</p> <p>-</p> <p>Correct)</p> <p>Note:</p> <ul style="list-style-type: none"> <li>-TA: Ambient temperature (JEDEC)</li> <li>-TC: Case temperature (JEDEC), the maximum measured temperature of package case top.</li> <li>-Both rating of TA and TC should simultaneously be satisfied as maximum operation temperature.</li> <li>-The following condition should be satisfied in order to facilitate heat dissipation.</li> </ul> <ol style="list-style-type: none"> <li>1. Four or more layers PCB should be used.</li> <li>2. The area of PCB should be 114.3 mm x 76.2 mm or more, and the thickness should be 1.6 mm or more. (JEDEC standard)</li> <li>3. One layer of middle layers at least should be used for dedicated layer to radiate heat with residual copper rate 90% or more. The layer can be used for system ground.</li> <li>4. 35% or more of the die stage area which is exposed at back surface of package should be soldered to a part of 1st layer.</li> <li>5. The part of 1st layer should be connected to the dedicated heat radiation layer with more than 10 thermal via holes.</li> </ol> <p>Example thermal via holes on PCB</p> <p>&lt;Figure&gt;</p> <ul style="list-style-type: none"> <li>- The above figure is a schematic diagram showing PCB in section.</li> <li>- Thermal via holes should closely be placed and aligned with lands.</li> <li>- It is recommended to connect the land pattern to the VSS-ground level (GND plan of inner layer bellow the MCU) as thermal heat sink.</li> </ul> |

| Page                 | Section                                                 | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                   |        |          |            |            |                                                                                                         |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|----------------------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|----------|------------|------------|---------------------------------------------------------------------------------------------------------|------------|------|---------|-------|---------|-----|----------------------|-------------------|--------|------------------|---------|-----|------|----|---------------------------------------------------------------------------------------------------------|-------------------|---|-----|------|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|--------------------|-----|------------------|----|---------------------------------------------------------------------------------------------------------|--------------------|----|------------------|---|---|-----|----|--|
| 185                  | 9. Electric Characteristics<br>9.1.3 DC characteristics | Error) <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td rowspan="3">Power supply current</td><td rowspan="2">I<sub>CC12</sub></td><td rowspan="2">VCC 12</td><td>Normal operation</td><td>-</td><td>500</td><td>1000</td><td>mA</td><td>T<sub>A</sub>=-40 ~ 105°C<br/>CPU:240MHz,<br/>HPM:120MHz<br/>(CPU:200MHz,<br/>HPM:200MHz)<br/>GDC : 200MHz</td></tr><tr><td>Flash write/erase</td><td>-</td><td>550</td><td>1050</td><td>mA</td><td>T<sub>A</sub>=-40 ~ 105°C<br/>CPU:240MHz,<br/>HPM:120MHz<br/>(CPU:200MHz,<br/>HPM:200MHz)<br/>GDC : 200MHz</td></tr><tr><td>I<sub>CCH12</sub></td><td></td><td>Timer/ Stop Mode</td><td>-</td><td>-</td><td>650</td><td>mA</td><td></td></tr></table>                                                                                                                                                                        | Parameter         | Symbol | Pin Name | Conditions | Value      |                                                                                                         |            | Unit | Remarks | Min   | Typ     | Max | Power supply current | I <sub>CC12</sub> | VCC 12 | Normal operation | -       | 500 | 1000 | mA | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz | Flash write/erase | - | 550 | 1050 | mA                                                                                           | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz | I <sub>CCH12</sub> |     | Timer/ Stop Mode | -  | -                                                                                                       | 650                | mA |                  |   |   |     |    |  |
|                      |                                                         | Parameter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                   |        |          |            | Symbol     | Pin Name                                                                                                | Conditions |      |         | Value |         |     |                      |                   |        | Unit             | Remarks |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
| Min                  | Typ                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Max               |        |          |            |            |                                                                                                         |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
| Power supply current | I <sub>CC12</sub>                                       | VCC 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Normal operation  | -      | 500      | 1000       | mA         | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Flash write/erase | -      | 550      | 1050       | mA         | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      | I <sub>CCH12</sub>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Timer/ Stop Mode  | -      | -        | 650        | mA         |                                                                                                         |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      |                                                         | Correct) <table><tr><th rowspan="2">Parameter</th><th rowspan="2">Symbol</th><th rowspan="2">Pin Name</th><th rowspan="2">Conditions</th><th colspan="3">Value</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td rowspan="4">Power supply current</td><td rowspan="3">I<sub>CC12</sub></td><td rowspan="3">VCC 12</td><td rowspan="2">Normal operation</td><td>-</td><td>320</td><td>800</td><td>mA</td><td>T<sub>A</sub>=-40 ~ 105°C<br/>CPU:240MHz,<br/>HPM:120MHz<br/>(CPU:200MHz,<br/>HPM:200MHz)<br/>GDC : 200MHz</td></tr><tr><td>-</td><td>-</td><td>395</td><td>mA</td><td>Example use case *1<br/>T<sub>A</sub>=-40 ~ 105°C<br/>CPU:60MHz,<br/>HPM:60MHz<br/>GDC : 60MHz</td></tr><tr><td>Flash write/erase</td><td>-</td><td>350</td><td>850</td><td>mA</td><td>T<sub>A</sub>=-40 ~ 105°C<br/>CPU:240MHz,<br/>HPM:120MHz<br/>(CPU:200MHz,<br/>HPM:200MHz)<br/>GDC : 200MHz</td></tr><tr><td>I<sub>CCH12</sub></td><td></td><td>Timer/ Stop Mode</td><td>-</td><td>-</td><td>430</td><td>mA</td><td></td></tr></table> | Parameter         | Symbol | Pin Name | Conditions | Value      |                                                                                                         |            | Unit | Remarks | Min   | Typ     | Max | Power supply current | I <sub>CC12</sub> | VCC 12 | Normal operation | -       | 320 | 800  | mA | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz | -                 | - | 395 | mA   | Example use case *1<br>T <sub>A</sub> =-40 ~ 105°C<br>CPU:60MHz,<br>HPM:60MHz<br>GDC : 60MHz | Flash write/erase                                                                                       | -                  | 350 | 850              | mA | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz | I <sub>CCH12</sub> |    | Timer/ Stop Mode | - | - | 430 | mA |  |
| Parameter            | Symbol                                                  | Pin Name                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                   |        |          |            | Conditions | Value                                                                                                   |            |      |         | Unit  | Remarks |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Min               | Typ    | Max      |            |            |                                                                                                         |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
| Power supply current | I <sub>CC12</sub>                                       | VCC 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Normal operation  | -      | 320      | 800        | mA         | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   | -      | -        | 395        | mA         | Example use case *1<br>T <sub>A</sub> =-40 ~ 105°C<br>CPU:60MHz,<br>HPM:60MHz<br>GDC : 60MHz            |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Flash write/erase | -      | 350      | 850        | mA         | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
|                      | I <sub>CCH12</sub>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Timer/ Stop Mode  | -      | -        | 430        | mA         |                                                                                                         |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |
| 186                  | 9. Electric Characteristics<br>9.1.3 DC characteristics | Error)<br>-<br>Correct)<br>*1 : Example use case at following condition<br>CPU:60MHz, HPM:60MHz, GDC : 60MHz<br>Peripherals:<br>- DMAC active (WorkFlash => SystemRAM)<br>- All timers active<br>- 6 SMCs, 1 CAN, 2LIN, 1SPI, PWMs, ADCs<br>Display controller:<br>- 2 (= all) layers active (60 MHz, noise RGBA, 32 bpp, 2048 x 5 pixels)<br>- Any other resources inactive<br>- IOs no toggle                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                   |        |          |            |            |                                                                                                         |            |      |         |       |         |     |                      |                   |        |                  |         |     |      |    |                                                                                                         |                   |   |     |      |                                                                                              |                                                                                                         |                    |     |                  |    |                                                                                                         |                    |    |                  |   |   |     |    |  |



| Page                          | Section                                                                    | Change Results                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                                     |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|-------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---------------------------------------------------------------------|--|-----------|--------|--|--|------|---------|-----|-----|-------------------|-------------------|---|-----|-----|----|---------------------------------------------------------------------|---|-----|-----|----|-------------------------------------------------------------------|---|-----|-----|----|-------------------------------------------------------------------|---------------------------|---|----|-----|----|---------------------------------------------------|---------------------------|---|----|-----|----|---------------------------------------------------|---------------------------|---|----|-----|----|---------------------------------------------------|----------------------------|---|----|-----|----|---------------------------------------------------|-------------------------------|---|-----|------|----|---------------------------------------------------|------------------------|---|----|-----|----|---------------------------------------------------|
| 254                           | 9. Electric                                                                | Error)<br>-<br>Correct)<br>Newly added<br>Case-1, Case2-1 and Case2-2 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                                     |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 255                           | Characteristics                                                            |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                                     |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 256                           | 9.1.4.22 Power and Reset Sequence                                          |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |      |                                                                     |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 266                           | 9. Electric<br>Characteristics<br>9.1.7.1<br>Electrical<br>Characteristics | Error)                                                                | <table><tr><th rowspan="2">Parameter</th><th colspan="3">Rating</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max<sup>*3</sup></th></tr><tr><td rowspan="3">Sector erase time</td><td>-</td><td>120</td><td>480</td><td>ms</td><td>Large sector<sup>*1</sup><br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>480</td><td>ms</td><td>8kB sector<sup>*1</sup><br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>480</td><td>ms</td><td>4kB sector<sup>*1</sup><br/>Internal preprogramming time included</td></tr><tr><td>16bit write time(Program)</td><td>-</td><td>30</td><td>384</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>32bit write time(Program)</td><td>-</td><td>30</td><td>384</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>64bit write time(Program)</td><td>-</td><td>30</td><td>384</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>256bit write time(Program)</td><td>-</td><td>40</td><td>512</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>Page mode write time(Program)</td><td>-</td><td>320</td><td>4096</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>32bit write time(Work)</td><td>-</td><td>30</td><td>384</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr></table> |      |                                                                     |  | Parameter | Rating |  |  | Unit | Remarks | Min | Typ | Max <sup>*3</sup> | Sector erase time | - | 120 | 480 | ms | Large sector <sup>*1</sup><br>Internal preprogramming time included | - | 120 | 480 | ms | 8kB sector <sup>*1</sup><br>Internal preprogramming time included | - | 120 | 480 | ms | 4kB sector <sup>*1</sup><br>Internal preprogramming time included | 16bit write time(Program) | - | 30 | 384 | μs | System-level overhead time excluded <sup>*1</sup> | 32bit write time(Program) | - | 30 | 384 | μs | System-level overhead time excluded <sup>*1</sup> | 64bit write time(Program) | - | 30 | 384 | μs | System-level overhead time excluded <sup>*1</sup> | 256bit write time(Program) | - | 40 | 512 | μs | System-level overhead time excluded <sup>*1</sup> | Page mode write time(Program) | - | 320 | 4096 | μs | System-level overhead time excluded <sup>*1</sup> | 32bit write time(Work) | - | 30 | 384 | μs | System-level overhead time excluded <sup>*1</sup> |
| Parameter                     | Rating                                                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit | Remarks                                                             |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               | Min                                                                        | Typ                                                                   | Max <sup>*3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                                                                     |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| Sector erase time             | -                                                                          | 120                                                                   | 480                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ms   | Large sector <sup>*1</sup><br>Internal preprogramming time included |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               | -                                                                          | 120                                                                   | 480                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ms   | 8kB sector <sup>*1</sup><br>Internal preprogramming time included   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               | -                                                                          | 120                                                                   | 480                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ms   | 4kB sector <sup>*1</sup><br>Internal preprogramming time included   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 16bit write time(Program)     | -                                                                          | 30                                                                    | 384                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 32bit write time(Program)     | -                                                                          | 30                                                                    | 384                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 64bit write time(Program)     | -                                                                          | 30                                                                    | 384                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 256bit write time(Program)    | -                                                                          | 40                                                                    | 512                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| Page mode write time(Program) | -                                                                          | 320                                                                   | 4096                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 32bit write time(Work)        | -                                                                          | 30                                                                    | 384                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               |                                                                            | Correct)                                                              | <table><tr><th rowspan="2">Parameter</th><th colspan="3">Rating</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max<sup>*3</sup></th></tr><tr><td rowspan="3">Sector erase time</td><td>-</td><td>120</td><td>180</td><td>ms</td><td>Large sector<sup>*1</sup><br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>180</td><td>ms</td><td>8kB sector<sup>*1</sup><br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>180</td><td>ms</td><td>4kB sector<sup>*1</sup><br/>Internal preprogramming time included</td></tr><tr><td>16bit write time(Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>32bit write time(Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>64bit write time(Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>256bit write time(Program)</td><td>-</td><td>40</td><td>70</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>Page mode write time(Program)</td><td>-</td><td>320</td><td>600</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr><tr><td>32bit write time(Work)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded<sup>*1</sup></td></tr></table>       |      |                                                                     |  | Parameter | Rating |  |  | Unit | Remarks | Min | Typ | Max <sup>*3</sup> | Sector erase time | - | 120 | 180 | ms | Large sector <sup>*1</sup><br>Internal preprogramming time included | - | 120 | 180 | ms | 8kB sector <sup>*1</sup><br>Internal preprogramming time included | - | 120 | 180 | ms | 4kB sector <sup>*1</sup><br>Internal preprogramming time included | 16bit write time(Program) | - | 30 | 60  | μs | System-level overhead time excluded <sup>*1</sup> | 32bit write time(Program) | - | 30 | 60  | μs | System-level overhead time excluded <sup>*1</sup> | 64bit write time(Program) | - | 30 | 60  | μs | System-level overhead time excluded <sup>*1</sup> | 256bit write time(Program) | - | 40 | 70  | μs | System-level overhead time excluded <sup>*1</sup> | Page mode write time(Program) | - | 320 | 600  | μs | System-level overhead time excluded <sup>*1</sup> | 32bit write time(Work) | - | 30 | 60  | μs | System-level overhead time excluded <sup>*1</sup> |
| Parameter                     | Rating                                                                     |                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Unit | Remarks                                                             |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               | Min                                                                        | Typ                                                                   | Max <sup>*3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |      |                                                                     |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| Sector erase time             | -                                                                          | 120                                                                   | 180                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ms   | Large sector <sup>*1</sup><br>Internal preprogramming time included |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               | -                                                                          | 120                                                                   | 180                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ms   | 8kB sector <sup>*1</sup><br>Internal preprogramming time included   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
|                               | -                                                                          | 120                                                                   | 180                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | ms   | 4kB sector <sup>*1</sup><br>Internal preprogramming time included   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 16bit write time(Program)     | -                                                                          | 30                                                                    | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 32bit write time(Program)     | -                                                                          | 30                                                                    | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 64bit write time(Program)     | -                                                                          | 30                                                                    | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 256bit write time(Program)    | -                                                                          | 40                                                                    | 70                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| Page mode write time(Program) | -                                                                          | 320                                                                   | 600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |
| 32bit write time(Work)        | -                                                                          | 30                                                                    | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | μs   | System-level overhead time excluded <sup>*1</sup>                   |  |           |        |  |  |      |         |     |     |                   |                   |   |     |     |    |                                                                     |   |     |     |    |                                                                   |   |     |     |    |                                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                           |   |    |     |    |                                                   |                            |   |    |     |    |                                                   |                               |   |     |      |    |                                                   |                        |   |    |     |    |                                                   |

| Page    | Section                                                                                                     | Change Results                                                                                                                                                                                                                                                                                                                                                                                                              |       |             |   |                                                                                                             |   |                                                                      |   |                             |
|---------|-------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------------|---|-------------------------------------------------------------------------------------------------------------|---|----------------------------------------------------------------------|---|-----------------------------|
| 270     | 12. Appendix<br>12.1<br>Application 1:<br>JTAG tool<br>connection                                           | Error)<br>-<br>Correct)<br>Newly added this section                                                                                                                                                                                                                                                                                                                                                                         |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| Rev. *F |                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                             |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| 4       | 1. Overview<br>1.2 Document<br>Definition                                                                   | Error)<br>Table 1-1<br><br>Correct)<br>Table 1-1: Document Definition                                                                                                                                                                                                                                                                                                                                                       |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| 5       | 2. Function List<br>2.1 Function<br>List                                                                    | Error)<br>Table 2-1<br><br>Correct)<br>Table 2-1: Function Lineup                                                                                                                                                                                                                                                                                                                                                           |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| 7       | 2. Function List<br>2.2.1 Basic<br>option                                                                   | Error)<br>Figure 2-1<br><br>Correct)<br>Figure 2-1: Option and Part Number for S6J3310/20/30/40 Series                                                                                                                                                                                                                                                                                                                      |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| 7       | 2. Function List<br>2.2.1 Basic<br>option                                                                   | Error)<br>Revision: Revision version<br><br>Correct)<br>Revision: <table><tr><th>Digit</th><th>Description</th></tr><tr><td>C</td><td>Fixed Operation frequency of embedded Program Flash and CPU,<br/>Fixed Stabilization time for sub oscillator</td></tr><tr><td>D</td><td>Fixed TCFLASH Sector Write Permission and Data Retention after Reset</td></tr><tr><td>E</td><td>Leakage current improvement</td></tr></table> | Digit | Description | C | Fixed Operation frequency of embedded Program Flash and CPU,<br>Fixed Stabilization time for sub oscillator | D | Fixed TCFLASH Sector Write Permission and Data Retention after Reset | E | Leakage current improvement |
| Digit   | Description                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                             |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| C       | Fixed Operation frequency of embedded Program Flash and CPU,<br>Fixed Stabilization time for sub oscillator |                                                                                                                                                                                                                                                                                                                                                                                                                             |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| D       | Fixed TCFLASH Sector Write Permission and Data Retention after Reset                                        |                                                                                                                                                                                                                                                                                                                                                                                                                             |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| E       | Leakage current improvement                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                             |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| 8       | 2. Function List<br>2.2.3<br>Restriction                                                                    | Error)<br>Table 2-2<br><br>Correct)<br>Table 2-2: Pin Restriction                                                                                                                                                                                                                                                                                                                                                           |       |             |   |                                                                                                             |   |                                                                      |   |                             |
| 10      | 3. Product<br>Description<br>3.2 Product<br>Description                                                     | Error)<br>Table 3-1<br><br>Correct)<br>Table 3-1: Product Features                                                                                                                                                                                                                                                                                                                                                          |       |             |   |                                                                                                             |   |                                                                      |   |                             |

| Page | Section    | Change Results                    |
|------|------------|-----------------------------------|
| 17   | 4. Package | Error)                            |
| 18   | and Pin    | z : C, D (Revision)               |
| 19   | Assignment |                                   |
| 20   | 4.1 Pin    | Correct)                          |
| 21   | Assignment | z : C, D, <del>E</del> (Revision) |
| 22   |            |                                   |
| 23   |            |                                   |
| 24   |            |                                   |
| 25   |            |                                   |
| 26   |            |                                   |
| 27   |            |                                   |
| 28   |            |                                   |

| Page | Section                                                 | Change Results       |                    |                  |                    |                   |        |          |      |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|------|---------------------------------------------------------|----------------------|--------------------|------------------|--------------------|-------------------|--------|----------|------|------------------------------------------------------------------------------------------------------------------|------------|-------|-----|----------------------|-------------------|--------|------------------|------|---------|-----|----|---------------------------------------------------------------------------------------------------------|---|---|-----|----|-------------------------------------------------------------------------------------------|-------------------|---|-----|-----|----|---------------------------------------------------------------------------------------------------------|--------------------|------------------|---|---|-----|----|--|------------------|------|------------------|---|----|----|----|--|-------------------|---|---|-----|----|--|
| 185  | 9. Electric Characteristics<br>9.1.3 DC characteristics | Error)               |                    |                  |                    |                   |        |          |      |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         | Parameter            | Symbol             | Pin Name         | Conditions         | Value             |        |          | Unit | Remarks                                                                                                          | Min        | Typ   | Max | Power supply current | I <sub>CC12</sub> | VCC1 2 | Normal operation | -    | 320     | 800 | mA | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz | - | - | 395 | mA | Example use case *1<br>T <sub>A</sub> =-40 ~ 105°C<br>CPU:60MHz, HPM:60MHz<br>GDC : 60MHz | Flash write/erase | - | 350 | 850 | mA | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz | I <sub>CCH12</sub> | Timer/ Stop Mode | - | - | 430 | mA |  | I <sub>CC5</sub> | VCC5 | Normal operation | - | 45 | 85 | mA |  | Flash write/erase | - | - | 100 | mA |  |
|      |                                                         |                      |                    |                  |                    | Parameter         | Symbol | Pin Name |      |                                                                                                                  | Conditions | Value |     |                      |                   |        |                  | Unit | Remarks |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         | Min                  | Typ                | Max              |                    |                   |        |          |      |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         | Power supply current | I <sub>CC12</sub>  | VCC1 2           | Normal operation   | -                 | 320    | 800      | mA   | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz          |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  |                    | -                 | -      | 395      | mA   | Example use case *1<br>T <sub>A</sub> =-40 ~ 105°C<br>CPU:60MHz, HPM:60MHz<br>GDC : 60MHz                        |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  | Flash write/erase  | -                 | 350    | 850      | mA   | T <sub>A</sub> =-40 ~ 105°C<br>CPU:240MHz,<br>HPM:120MHz<br>(CPU:200MHz,<br>HPM:200MHz)<br>GDC : 200MHz          |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      | I <sub>CCH12</sub> |                  | Timer/ Stop Mode   | -                 | -      | 430      | mA   |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      | I <sub>CC5</sub>   | VCC5             | Normal operation   | -                 | 45     | 85       | mA   |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  | Flash write/erase  | -                 | -      | 100      | mA   |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         | Correct)             |                    |                  |                    |                   |        |          |      |                                                                                                                  |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         | Power supply current | I <sub>CC12</sub>  | VCC1 2           | Normal operation   | -                 | 315    | 775      | mA   | T <sub>A</sub> =-40 ~ 105 °C<br>CPU: 240 MHz,<br>HPM: 120 MHz<br>(CPU: 200 MHz,<br>HPM: 200 MHz)<br>GDC: 200 MHz |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  |                    | -                 | -      | 395      | mA   | Example use case *1<br>T <sub>A</sub> =-40 ~ 105 °C<br>CPU:60 MHz, HPM:60 MHz<br>GDC : 60 MHz                    |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  | Flash write/erase  | -                 | 320    | 780      | mA   | T <sub>A</sub> =-40 ~ 105°C<br>CPU: 240 MHz,<br>HPM: 120 MHz<br>(CPU: 200 MHz,<br>HPM: 200 MHz)<br>GDC : 200 MHz |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  | I <sub>CCH12</sub> | Timer/ Stop Mode  | -      | -        | 420  | mA                                                                                                               |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    | I <sub>CC5</sub> | VCC5               | Normal operation  | -      | 25       | 45   | mA                                                                                                               |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |
|      |                                                         |                      |                    |                  |                    | Flash write/erase | -      | -        | 60   | mA                                                                                                               |            |       |     |                      |                   |        |                  |      |         |     |    |                                                                                                         |   |   |     |    |                                                                                           |                   |   |     |     |    |                                                                                                         |                    |                  |   |   |     |    |  |                  |      |                  |   |    |    |    |  |                   |   |   |     |    |  |

| Page               | Section                                                 | Change Results         |                    |          |            |       |     |                                                        |      |                                                                                           |
|--------------------|---------------------------------------------------------|------------------------|--------------------|----------|------------|-------|-----|--------------------------------------------------------|------|-------------------------------------------------------------------------------------------|
| 187                | 9. Electric Characteristics<br>9.1.3 DC characteristics | Error)                 |                    |          |            |       |     |                                                        |      |                                                                                           |
|                    |                                                         | -                      |                    |          |            |       |     |                                                        |      |                                                                                           |
|                    |                                                         | Correct)               |                    |          |            |       |     |                                                        |      |                                                                                           |
|                    |                                                         | Parameter              | Symbol             | Pin Name | Conditions | Value |     |                                                        | Unit | Remarks                                                                                   |
|                    |                                                         |                        |                    |          |            | Min   | Typ | Max                                                    |      |                                                                                           |
|                    |                                                         | Power supply current * | I <sub>CC</sub> T5 | VCC5     | Timer mode | -     | 345 | 630                                                    | μA   | T <sub>A</sub> =25 °C. 4 MHz crystal for main oscillator<br>PD1=ON, PD4_0=ON, PD4_1=ON    |
|                    |                                                         |                        |                    |          |            | -     | 340 | 625                                                    | μA   | T <sub>A</sub> =25 °C. 4 MHz crystal for main oscillator.<br>PD1=ON, PD4_0=ON or PD4_1=ON |
|                    |                                                         |                        |                    |          |            | -     | 335 | 620                                                    | μA   | T <sub>A</sub> =25°C. 4 MHz crystal for main oscillator.<br>PD1=ON                        |
|                    |                                                         |                        |                    |          |            | -     | 420 | 705                                                    | μA   | T <sub>A</sub> =25 °C. 8 MHz crystal for main oscillator<br>PD1=ON, PD4_0=ON, PD4_1=ON    |
|                    |                                                         |                        |                    |          |            | -     | 415 | 700                                                    | μA   | T <sub>A</sub> =25 °C. 8 MHz crystal for main oscillator.<br>PD1=ON, PD4_0=ON or PD4_1=ON |
|                    |                                                         |                        |                    |          |            | -     | 410 | 695                                                    | μA   | T <sub>A</sub> =25 °C. 8 MHz crystal for main oscillator.<br>PD1=ON                       |
|                    |                                                         |                        |                    |          |            | -     | 80  | 135                                                    | μA   | T <sub>A</sub> =25 °C. 32 kHz crystal for sub oscillator<br>PD1=ON, PD4_0=ON, PD4_1=ON    |
|                    |                                                         |                        |                    |          |            | -     | 75  | 130                                                    | μA   | T <sub>A</sub> =25 °C. 32 kHz crystal for sub oscillator.<br>PD1=ON, PD4_0=ON or PD4_1=ON |
|                    |                                                         |                        |                    |          |            | -     | 70  | 125                                                    | μA   | T <sub>A</sub> =25 °C. 32 kHz crystal for sub oscillator.<br>PD1=ON                       |
| I <sub>CC</sub> H5 | VCC5                                                    |                        | Stop mode          | -        | 75         | 130   | μA  | T <sub>A</sub> =25 °C.<br>PD1=ON, PD4_0=ON, PD4_1=ON   |      |                                                                                           |
|                    |                                                         |                        |                    | -        | 70         | 125   | μA  | T <sub>A</sub> =25 °C.<br>PD1=ON, PD4_0=ON or PD4_1=ON |      |                                                                                           |
|                    |                                                         |                        |                    | -        | 65         | 120   | μA  | T <sub>A</sub> =25 °C.<br>PD1=ON                       |      |                                                                                           |

\* Electric Characteristics for S6J33xxxxE.

\* Electric Characteristics for S6J33xxxxE.

| Page           | Section                                        | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|----------------|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|----------|---------|---------|---------|---|------------|------------|---|------------|---------|---|------------|---|------------|---------|---|------------|---|------------|----------------|----------|---------|---------|---------|---|------------|------------|------|------------|---------|---|------------|------|------------|---------|---|------------|------|------------|
| 264<br>265     | 9. Electric Characteristics<br>9.1.6 Audio DAC | Error)<br>Figure 9-1<br>Figure 9-2<br>Figure 9-3<br><br>Correct)<br>Figure 9-1: Connection between R <sub>L</sub> and AVCC_DAC/2 (Example)<br>Figure 9-2: Startup Time<br>Figure 9-3: Coupling Capacitance (Example)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| 270            | 11. Ordering Information                       | Error)<br>x : C,D (Revision)<br><br>Correct)<br>x : C,D, E (Revision)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| Rev. *G        |                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| 6              | 2. Function List<br>2.1. Function List         | Function: CRC<br>Error)<br>1 unit<br><br>Correct)<br>4 units                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| 6              | 2. Function List<br>2.1. Function List         | Function: DDR HSSPI<br>Error)<br>2 ch<br><br>Correct)<br>1 ch                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| 8              | 2. Function List<br>2.2.2 ID                   | Error) <table><thead><tr><th>Function Digit</th><th>Revision</th><th>Chip ID</th><th>JTAG ID</th></tr></thead><tbody><tr><td rowspan="2">S,U,T,V</td><td>C</td><td>0x10122100</td><td rowspan="6">0x1000B5CF</td></tr><tr><td>D</td><td>0x10122200</td></tr><tr><td rowspan="2">A,C,E,G</td><td>C</td><td>0x10128100</td></tr><tr><td>D</td><td>0x10128200</td></tr><tr><td rowspan="2">B,D,F,H</td><td>C</td><td>0x10120100</td></tr><tr><td>D</td><td>0x10120200</td></tr></tbody></table><br>Correct) <table><thead><tr><th>Function Digit</th><th>Revision</th><th>Chip ID</th><th>JTAG ID</th></tr></thead><tbody><tr><td rowspan="2">S,U,T,V</td><td>C</td><td>0x10122100</td><td rowspan="6">0x1000B5CF</td></tr><tr><td>D, E</td><td>0x10122200</td></tr><tr><td rowspan="2">A,C,E,G</td><td>C</td><td>0x10128100</td></tr><tr><td>D, E</td><td>0x10128200</td></tr><tr><td rowspan="2">B,D,F,H</td><td>C</td><td>0x10120100</td></tr><tr><td>D, E</td><td>0x10120200</td></tr></tbody></table> | Function Digit | Revision | Chip ID | JTAG ID | S,U,T,V | C | 0x10122100 | 0x1000B5CF | D | 0x10122200 | A,C,E,G | C | 0x10128100 | D | 0x10128200 | B,D,F,H | C | 0x10120100 | D | 0x10120200 | Function Digit | Revision | Chip ID | JTAG ID | S,U,T,V | C | 0x10122100 | 0x1000B5CF | D, E | 0x10122200 | A,C,E,G | C | 0x10128100 | D, E | 0x10128200 | B,D,F,H | C | 0x10120100 | D, E | 0x10120200 |
| Function Digit | Revision                                       | Chip ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | JTAG ID        |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| S,U,T,V        | C                                              | 0x10122100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0x1000B5CF     |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|                | D                                              | 0x10122200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| A,C,E,G        | C                                              | 0x10128100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|                | D                                              | 0x10128200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| B,D,F,H        | C                                              | 0x10120100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|                | D                                              | 0x10120200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| Function Digit | Revision                                       | Chip ID                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | JTAG ID        |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| S,U,T,V        | C                                              | 0x10122100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0x1000B5CF     |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|                | D, E                                           | 0x10122200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| A,C,E,G        | C                                              | 0x10128100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|                | D, E                                           | 0x10128200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
| B,D,F,H        | C                                              | 0x10120100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |
|                | D, E                                           | 0x10120200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                |          |         |         |         |   |            |            |   |            |         |   |            |   |            |         |   |            |   |            |                |          |         |         |         |   |            |            |      |            |         |   |            |      |            |         |   |            |      |            |

| Page | Section                                            | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10   | 3: Product Description<br>3.2. Product Description | Feature: Clock Error)<br>-<br>Correct)<br>Main Oscillation Stabilization Wait Time (at 4 MHz):8.19ms (Initial value)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 10   | 3: Product Description<br>3.2. Product Description | Error)<br>-<br>Correct)<br>Feature: Embedded CR oscillation<br>See the Traveo™ Platform hardware manual in detail.<br>Stabilization time is as followings.<br>- 0.35 ms to 0.8 ms for 4 MHz (Fast clock)<br>- 0.43 ms to 1.28 ms for 100 kHz (Slow clock)                                                                                                                                                                                                                                                                                                                                                                           |
| 11   | 3: Product Description<br>3.2. Product Description | Feature: Reset Error)<br>Based on Cortex R5F platform<br>Following resets are not mounted on this device.<br>- INITX<br>- SRSTX<br>Correct)<br>RSTX pin + MD pin simultaneous assert INITX (Same as INITX pin input)<br>- Occurrence factor: Simultaneously inputting "L" level to RSTX pin and inputting "L" level to MD pin<br>- Release factor: Inputting "H" level to RSTX pin<br>See the Traveo™ Platform hardware manual in detail.<br>Following resets are not mounted on this device.<br>- SRSTX (and nSRST pin)<br>The product series does not support EX5VRST and writing EX5VRSTCNT bits in SYSC0_SPECFGR has no effect. |
| 11   | 3: Product Description<br>3.2. Product Description | Feature: PLL / SSCG PLL Error)<br>Down spread mode is only supported and available.<br>Correct)<br>Product supports down spread and center spread modes with the conditions defined in 9.1.4.3 "Internal Clock Timing".                                                                                                                                                                                                                                                                                                                                                                                                             |
| 12   | 3: Product Description<br>3.2. Product Description | Feature: Embedded Program/Work Flash Memory Error)<br>Work Flash can be accessed with 0-wait-cycle if CPU frequency is 12.5MHz or less.<br>7-wait-cycle: 80MHz or less.<br>13-wait-cycle: 160MHz or less.<br>Correct)<br>Work Flash can be accessed with 0-wait-cycle if CPU frequency is 12.5MHz or less.<br>6-wait-cycle: 80MHz or less.<br>12-wait-cycle: 160MHz or less.                                                                                                                                                                                                                                                        |

| Page | Section                                            | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13   | 3: Product Description<br>3.2. Product Description | Feature: I2S<br>Error)<br>- I2S has its own PPU, but the function is fixed to disable.<br>Correct)<br>-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 14   | 3: Product Description<br>3.2. Product Description | Feature: Multi-Functional Serial (MFS)<br>Error)<br>Some ports of MFS have the dedicated I/O for I <sup>2</sup> C.<br>See Port description list in detail.<br>When the voltage supply of I <sup>2</sup> C interface is 5.0 V, it cannot use the I/O cells of 3.3 V voltage supply for the I <sup>2</sup> C terminal.<br>CTS/RTS is not mounted (hardware flow control is not supported for this series.)<br><br>Correct)<br>Only 2 ports of MFS have the dedicated I/O for I <sup>2</sup> C.<br>See I <sup>2</sup> C timing in 9.1.4.6 Multi-Function Serial in detail.<br>The I <sup>2</sup> C is not designed to be hot swappable.<br>CTS/RTS is not mounted (hardware flow control is not supported for this series.) |
| 14   | 3: Product Description<br>3.2. Product Description | Feature: Hyper BUS I/F<br>Error)<br>The following register is not supported and cannot be used.<br>- Controller Status Register (HYPERBUSIn_CSR)<br>- Interrupt Status Register (HYPERBUSIn_ISR)<br>- Write Protection Register (HYPERBUSIn_WPR)<br>- Test Register (HYPERBUSIn_TEST)<br><br>Correct)<br>The following register is not supported and cannot be used.<br>- Controller Status Register (HYPERBUSIn_CSR)<br>- Interrupt Enable Register (HYPERBUSIn_IEN)<br>- Interrupt Status Register (HYPERBUSIn_ISR)<br>- Write Protection Register (HYPERBUSIn_WPR)<br>- Test Register (HYPERBUSIn_TEST)                                                                                                               |



| Page                                                     | Section                                                           | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                   |        |                                                                                             |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|----------------------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|--------|---------------------------------------------------------------------------------------------|--|------|---------|-----|-----|-------------------|-------------------|---|-----|-----|----|---------------------------------------------------------|---|-----|-----|----|--------------------------------------------------------|---|-----|-----|----|--------------------------------------------------------|-----------------------------|---|----|----|----|---------------------------------------|-----------------------------|---|----|----|----|---------------------------------------|-----------------------------|---|----|----|----|---------------------------------------|------------------------------|---|----|----|----|---------------------------------------|--------------------------------|---|-----|-----|----|---------------------------------------|--------------------------|---|----|----|----|---------------------------------------|----------------------------------------------------------|----------------|---|---|---|---------------------------------------------------------------------------------------------|-------------------------------------------------------|------------------------------------------------------|---|---|---|---------------------------------------------------------------------------------------------|
| 266                                                      | 9. Electric Characteristics<br>9.1.7.1 Electrical Characteristics | Error)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                   |        |                                                                                             |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          |                                                                   | <table><tr><th rowspan="2">Parameter</th><th colspan="3">Rating</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max<sup>*3</sup></th></tr><tr><td rowspan="3">Sector erase time</td><td>-</td><td>120</td><td>180</td><td>ms</td><td>Large sector*1<br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>180</td><td>ms</td><td>8kB sector*1<br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>180</td><td>ms</td><td>4kB sector*1<br/>Internal preprogramming time included</td></tr><tr><td>16bit write time(Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>32bit write time(Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>64bit write time(Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>256bit write time(Program)</td><td>-</td><td>40</td><td>70</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>Page mode write time(Program)</td><td>-</td><td>320</td><td>600</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>32bit write time(Work)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>Erase count / Data retention time(Program)<sup>*3</sup></td><td>1,000/20 years</td><td>-</td><td>-</td><td>-</td><td>Temperature at write/erase time<br/>Average temperature T<sub>A</sub>=+85 degrees Celsius</td></tr><tr><td>Erase count / Data retention time(Work)<sup>*3</sup></td><td>1,000/20 years<br/>10,000/10 years<br/>100,000/5 years</td><td>-</td><td>-</td><td>-</td><td>Temperature at write/erase time<br/>Average temperature T<sub>A</sub>=+85 degrees Celsius</td></tr></table> <p>*1: Guaranteed value for up to 1,000 erases<br/>*2: Guaranteed value for up to 100,000 erases<br/>*3: Target Value</p> | Parameter         | Rating |                                                                                             |  | Unit | Remarks | Min | Typ | Max <sup>*3</sup> | Sector erase time | - | 120 | 180 | ms | Large sector*1<br>Internal preprogramming time included | - | 120 | 180 | ms | 8kB sector*1<br>Internal preprogramming time included  | - | 120 | 180 | ms | 4kB sector*1<br>Internal preprogramming time included  | 16bit write time(Program)   | - | 30 | 60 | μs | System-level overhead time excluded*1 | 32bit write time(Program)   | - | 30 | 60 | μs | System-level overhead time excluded*1 | 64bit write time(Program)   | - | 30 | 60 | μs | System-level overhead time excluded*1 | 256bit write time(Program)   | - | 40 | 70 | μs | System-level overhead time excluded*1 | Page mode write time(Program)  | - | 320 | 600 | μs | System-level overhead time excluded*1 | 32bit write time(Work)   | - | 30 | 60 | μs | System-level overhead time excluded*1 | Erase count / Data retention time(Program) <sup>*3</sup> | 1,000/20 years | - | - | - | Temperature at write/erase time<br>Average temperature T <sub>A</sub> =+85 degrees Celsius  | Erase count / Data retention time(Work) <sup>*3</sup> | 1,000/20 years<br>10,000/10 years<br>100,000/5 years | - | - | - | Temperature at write/erase time<br>Average temperature T <sub>A</sub> =+85 degrees Celsius  |
| Parameter                                                | Rating                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   | Unit   | Remarks                                                                                     |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          | Min                                                               | Typ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max <sup>*3</sup> |        |                                                                                             |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Sector erase time                                        | -                                                                 | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 180               | ms     | Large sector*1<br>Internal preprogramming time included                                     |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          | -                                                                 | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 180               | ms     | 8kB sector*1<br>Internal preprogramming time included                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          | -                                                                 | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 180               | ms     | 4kB sector*1<br>Internal preprogramming time included                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 16bit write time(Program)                                | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 32bit write time(Program)                                | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 64bit write time(Program)                                | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 256bit write time(Program)                               | -                                                                 | 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 70                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Page mode write time(Program)                            | -                                                                 | 320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 600               | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 32bit write time(Work)                                   | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Erase count / Data retention time(Program) <sup>*3</sup> | 1,000/20 years                                                    | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                 | -      | Temperature at write/erase time<br>Average temperature T <sub>A</sub> =+85 degrees Celsius  |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Erase count / Data retention time(Work) <sup>*3</sup>    | 1,000/20 years<br>10,000/10 years<br>100,000/5 years              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                 | -      | Temperature at write/erase time<br>Average temperature T <sub>A</sub> =+85 degrees Celsius  |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          |                                                                   | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                   |        |                                                                                             |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          |                                                                   | <table><tr><th rowspan="2">Parameter</th><th colspan="3">Rating</th><th rowspan="2">Unit</th><th rowspan="2">Remarks</th></tr><tr><th>Min</th><th>Typ</th><th>Max</th></tr><tr><td rowspan="3">Sector erase time</td><td>-</td><td>120</td><td>180</td><td>ms</td><td>Large sector*1<br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>180</td><td>ms</td><td>8 kB sector*1<br/>Internal preprogramming time included</td></tr><tr><td>-</td><td>120</td><td>180</td><td>ms</td><td>4 kB sector*2<br/>Internal preprogramming time included</td></tr><tr><td>16-bit write time (Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>32-bit write time (Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>64-bit write time (Program)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>256-bit write time (Program)</td><td>-</td><td>40</td><td>70</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>Page mode write time (Program)</td><td>-</td><td>320</td><td>600</td><td>μs</td><td>System-level overhead time excluded*1</td></tr><tr><td>32-bit write time (Work)</td><td>-</td><td>30</td><td>60</td><td>μs</td><td>System-level overhead time excluded*2</td></tr><tr><td>Erase count / Data retention time (Program)</td><td>1,000/20 years</td><td>-</td><td>-</td><td>-</td><td>Temperature at write/erase time<br/>Average temperature T<sub>A</sub> = +85 degrees Celsius</td></tr><tr><td>Erase count / Data retention time (Work)</td><td>1,000/20 years<br/>10,000/10 years<br/>100,000/5 years</td><td>-</td><td>-</td><td>-</td><td>Temperature at write/erase time<br/>Average temperature T<sub>A</sub> = +85 degrees Celsius</td></tr></table> <p>*1: Guaranteed value for up to 1,000 erases<br/>*2: Guaranteed value for up to 100,000 erases</p>                                          | Parameter         | Rating |                                                                                             |  | Unit | Remarks | Min | Typ | Max               | Sector erase time | - | 120 | 180 | ms | Large sector*1<br>Internal preprogramming time included | - | 120 | 180 | ms | 8 kB sector*1<br>Internal preprogramming time included | - | 120 | 180 | ms | 4 kB sector*2<br>Internal preprogramming time included | 16-bit write time (Program) | - | 30 | 60 | μs | System-level overhead time excluded*1 | 32-bit write time (Program) | - | 30 | 60 | μs | System-level overhead time excluded*1 | 64-bit write time (Program) | - | 30 | 60 | μs | System-level overhead time excluded*1 | 256-bit write time (Program) | - | 40 | 70 | μs | System-level overhead time excluded*1 | Page mode write time (Program) | - | 320 | 600 | μs | System-level overhead time excluded*1 | 32-bit write time (Work) | - | 30 | 60 | μs | System-level overhead time excluded*2 | Erase count / Data retention time (Program)              | 1,000/20 years | - | - | - | Temperature at write/erase time<br>Average temperature T <sub>A</sub> = +85 degrees Celsius | Erase count / Data retention time (Work)              | 1,000/20 years<br>10,000/10 years<br>100,000/5 years | - | - | - | Temperature at write/erase time<br>Average temperature T <sub>A</sub> = +85 degrees Celsius |
| Parameter                                                | Rating                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                   | Unit   | Remarks                                                                                     |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          | Min                                                               | Typ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Max               |        |                                                                                             |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Sector erase time                                        | -                                                                 | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 180               | ms     | Large sector*1<br>Internal preprogramming time included                                     |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          | -                                                                 | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 180               | ms     | 8 kB sector*1<br>Internal preprogramming time included                                      |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
|                                                          | -                                                                 | 120                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 180               | ms     | 4 kB sector*2<br>Internal preprogramming time included                                      |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 16-bit write time (Program)                              | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 32-bit write time (Program)                              | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 64-bit write time (Program)                              | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 256-bit write time (Program)                             | -                                                                 | 40                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 70                | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Page mode write time (Program)                           | -                                                                 | 320                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 600               | μs     | System-level overhead time excluded*1                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| 32-bit write time (Work)                                 | -                                                                 | 30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 60                | μs     | System-level overhead time excluded*2                                                       |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Erase count / Data retention time (Program)              | 1,000/20 years                                                    | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                 | -      | Temperature at write/erase time<br>Average temperature T <sub>A</sub> = +85 degrees Celsius |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |
| Erase count / Data retention time (Work)                 | 1,000/20 years<br>10,000/10 years<br>100,000/5 years              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                 | -      | Temperature at write/erase time<br>Average temperature T <sub>A</sub> = +85 degrees Celsius |  |      |         |     |     |                   |                   |   |     |     |    |                                                         |   |     |     |    |                                                        |   |     |     |    |                                                        |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                             |   |    |    |    |                                       |                              |   |    |    |    |                                       |                                |   |     |     |    |                                       |                          |   |    |    |    |                                       |                                                          |                |   |   |   |                                                                                             |                                                       |                                                      |   |   |   |                                                                                             |

| Page                             | Section                                                                                                                                                                           | Change Results                                                                                           |                                                                                                                                                |                                    |               |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|---------------|
| Rev. *H                          |                                                                                                                                                                                   |                                                                                                          |                                                                                                                                                |                                    |               |
| 4                                | 1. Overview<br>1.2 Document Definition                                                                                                                                            | Added the Document Definition as below.                                                                  |                                                                                                                                                |                                    |               |
|                                  |                                                                                                                                                                                   | Error                                                                                                    |                                                                                                                                                |                                    |               |
|                                  |                                                                                                                                                                                   | Document Type                                                                                            | Definition                                                                                                                                     | Primary User                       | Document Code |
|                                  |                                                                                                                                                                                   | S6J3310/20/30/40 Datasheet                                                                               | The function and its characteristics are specified quantitatively.                                                                             | Investigator and hardware engineer | 002-10635     |
|                                  |                                                                                                                                                                                   | S6J3300 Hardware Manual                                                                                  | The function and its operation of S6J3300 series are described.                                                                                | Software engineer                  | 002-10185     |
|                                  |                                                                                                                                                                                   | Traveo™ Platform Hardware Manual                                                                         | The function and its operation of CPU core platform are described.                                                                             | Software engineer                  | 002-07884     |
|                                  |                                                                                                                                                                                   | Correct                                                                                                  |                                                                                                                                                |                                    |               |
|                                  |                                                                                                                                                                                   | Document Type                                                                                            | Definition                                                                                                                                     | Primary User                       | Document Code |
|                                  |                                                                                                                                                                                   | S6J3310/20/30/40 Datasheet                                                                               | <u>This document.</u><br>The function and its characteristics are specified quantitatively.                                                    | Investigator and hardware engineer | 002-10635     |
|                                  |                                                                                                                                                                                   | S6J3300 Hardware Manual                                                                                  | <u>S6J3300 Series 32-bit Microcontroller Traveo™ Family Hardware Manual</u><br>The function and its operation of S6J3300 series are described. | Software engineer                  | 002-10185     |
| Traveo™ Platform Hardware Manual | <u>32-Bit Microcontroller Traveo™ Family S6J33xx, S6J34xx, S6J35xx Series Hardware Manual Platform Part</u><br>The function and its operation of CPU core platform are described. | Software engineer                                                                                        | 002-07884                                                                                                                                      |                                    |               |
| 14                               | 3: Product Description<br>3.2. Product Description                                                                                                                                | Deleted as below.                                                                                        |                                                                                                                                                |                                    |               |
|                                  |                                                                                                                                                                                   | <u>-Note: The description of the preliminary documentation will be changed without any notification.</u> |                                                                                                                                                |                                    |               |

| Page               | Section                                                 | Change Results                                         |                                                |                                         |   |                        |   |   |  |          |  |
|--------------------|---------------------------------------------------------|--------------------------------------------------------|------------------------------------------------|-----------------------------------------|---|------------------------|---|---|--|----------|--|
| 175                | 9. Electric Characteristics<br>9.1.3 DC Characteristics | Added the Hysteresis voltage as below.<br><br>Correct) |                                                |                                         |   |                        |   |   |  |          |  |
| Hysteresis voltage |                                                         | $V_{HYS1}$                                             | P0_00 to P0_20, P2_09 to                       | CMOS hysteresis input level is selected | - | $0.05 \times V_{CC53}$ | - | V |  |          |  |
|                    |                                                         | $V_{HYS2}$                                             | P2_19, P3_00 to P3_07, P3_24 to                | Automotive input level is selected      | - | $0.03 \times V_{CC53}$ | - | V |  |          |  |
|                    |                                                         | $V_{HYS3}$                                             | P3_31, P4_00 to P4_07                          | TTL input level is selected             | - | 0.035                  | - | V |  |          |  |
|                    |                                                         | $V_{HYS4}$                                             | P1_03 to P1_16, P3_08 to P3_23, P4_08 to       | CMOS hysteresis input level is selected | - | $0.05 \times V_{CC5}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS5}$                                             | P4_23                                          | Automotive input level is selected      | - | $0.03 \times V_{CC5}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS6}$                                             | P1_09, P1_10, P1_15, P1_16                     | TTL input level is selected             | - | 0.035                  | - | V |  |          |  |
|                    |                                                         | $V_{HYS7}$                                             | P1_17 to P1_31, P2_00 to P2_08, P4_24 to       | CMOS hysteresis input level is selected | - | $0.05 \times DV_{CC}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS8}$                                             | P4_31                                          | Automotive input level is selected      | - | $0.03 \times DV_{CC}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS9}$                                             | RSTX NMIX                                      | -                                       | - | $0.05 \times V_{CC5}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS10}$                                            | MD                                             | -                                       | - | $0.05 \times V_{CC5}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS11}$                                            | JTAG_NTRST<br>JTAG_TCK<br>JTAG_TDI<br>JTAG_TMS | -                                       | - | 0.035                  | - | V |  |          |  |
|                    |                                                         | $V_{HYS12}$                                            | P0_21 to P0_31, P1_00 to P1_02                 | CMOS hysteresis input level is selected | - | $0.05 \times V_{CC3}$  | - | V |  |          |  |
|                    |                                                         | $V_{HYS13}$                                            | P0_21 to P0_31                                 | TTL input level is selected             | - | 0.035                  | - | V |  |          |  |
|                    |                                                         | $V_{HYS14}$                                            | P1_00 to P1_02                                 | -                                       | - | 0.080                  | - | V |  | MediaL B |  |

| Page                                                                | Section                                                      | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|---------------------------------------------------------------------|--------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 187                                                                 | 9. Electric Characteristics<br>9.1.4.3 Internal Clock Timing | <p>Added the *4 in "Remarks" column</p> <p>Error)</p> <p>SSCG0 output clock</p> <p>SSCG1 output clock</p> <p>SSCG2 output clock</p> <p>SSCG3 output clock</p> <p>PLL0 output clock</p> <p>PLL1 output clock</p> <p>PLL2 output clock</p> <p>PLL3 output clock</p> <p>Correct)</p> <p>SSCG0 output clock *4</p> <p>SSCG1 output clock *4</p> <p>SSCG2 output clock *4</p> <p>SSCG3 output clock *4</p> <p>PLL0 output clock *4</p> <p>PLL1 output clock *4</p> <p>PLL2 output clock *4</p> <p>PLL3 output clock *4</p> |
| 188                                                                 | 9. Electric Characteristics<br>9.1.4.3 Internal Clock Timing | <p>Added the below *4 sentence.</p> <p>Error)</p> <p>(none)</p> <p>Correct)</p> <p>*4: The PLLx/SSCGx cannot set under 200MHz.</p>                                                                                                                                                                                                                                                                                                                                                                                    |
| 195,<br>198,<br>201,<br>204,<br>207,<br>210,<br>213,<br>216,<br>249 | 9. Electric Characteristics<br>9.1.4 AC Characteristics      | <p>Modified the shading document name as below.</p> <p>Error)</p> <p><i>For details, see the <u>hardware manual</u>.</i></p> <p>Correct)</p> <p><i>For details, see the <u>Traveo™ Platform Hardware Manual</u>.</i></p>                                                                                                                                                                                                                                                                                              |
| 227                                                                 | 9. Electric Characteristics<br>9.1.4 AC Characteristics      | <p>Modified the shading document name as below.</p> <p>Error)</p> <p><i>Please refer to <u>Product Hardware Manual</u> for available list.</i></p> <p>Correct)</p> <p><i>Please refer to <u>S6J3300 series Hardware Manual</u> for available list.</i></p>                                                                                                                                                                                                                                                            |

| Page            | Section                                | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
|-----------------|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|----------------|--------------------------------|-----------------|--------------------------------|----------------|--------------------------------|-----------------|--------------------------------|-----------------|--------------------------------|----------------|--------------------------------|-----------------|----------------------------------------|
| 265             | 11. Ordering Information               | <div>Revised as below.</div> <div>Error)</div> <table><tr><th>Part Number *1</th><th>Package</th></tr><tr><td>S6J331EKEx*****</td><td>208-pin plastic TEQFP (LEW208)</td></tr><tr><td>S6J332CKSx*****</td><td>208-pin plastic TEQFP (LEW208)</td></tr><tr><td>S6J334CKSx*****</td><td>208-pin plastic TEQFP (LEW208)</td></tr><tr><td>S6J331EJAx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332CJBx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332CJT*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332EJBx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334BJDx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334CJEx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334CJT*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334DJEx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334DJT*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJAx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJEx*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJT*****</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334CHBx*****</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr></table> | Part Number *1 | Package | S6J331EKEx***** | 208-pin plastic TEQFP (LEW208) | S6J332CKSx***** | 208-pin plastic TEQFP (LEW208) | S6J334CKSx***** | 208-pin plastic TEQFP (LEW208) | S6J331EJAx***** | 176-pin plastic TEQFP (LEV176) | S6J332CJBx***** | 176-pin plastic TEQFP (LEV176) | S6J332CJT***** | 176-pin plastic TEQFP (LEV176) | S6J332EJBx***** | 176-pin plastic TEQFP (LEV176) | S6J334BJDx***** | 176-pin plastic TEQFP (LEV176) | S6J334CJEx***** | 176-pin plastic TEQFP (LEV176) | S6J334CJT***** | 176-pin plastic TEQFP (LEV176) | S6J334DJEx***** | 176-pin plastic TEQFP (LEV176) | S6J334DJT***** | 176-pin plastic TEQFP (LEV176) | S6J334EJAx***** | 176-pin plastic TEQFP (LEV176) | S6J334EJEx***** | 176-pin plastic TEQFP (LEV176) | S6J334EJT***** | 176-pin plastic TEQFP (LEV176) | S6J334CHBx***** | 144-pin plastic TEQFP (LEX144, LEK144) |
| Part Number *1  | Package                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J331EKEx***** | 208-pin plastic TEQFP (LEW208)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J332CKSx***** | 208-pin plastic TEQFP (LEW208)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334CKSx***** | 208-pin plastic TEQFP (LEW208)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J331EJAx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J332CJBx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J332CJT*****  | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J332EJBx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334BJDx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334CJEx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334CJT*****  | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334DJEx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334DJT*****  | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334EJAx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334EJEx***** | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334EJT*****  | 176-pin plastic TEQFP (LEV176)         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |
| S6J334CHBx***** | 144-pin plastic TEQFP (LEX144, LEK144) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                |         |                 |                                |                 |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                 |                                |                 |                                |                |                                |                 |                                |                |                                |                 |                                |                 |                                |                |                                |                 |                                        |

| Page              | Section                                | Change Results                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                        |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|-------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|---------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|--------------------------------|-------------------|----------------------------------------|-------------------|----------------------------------------|-------------------|----------------------------------------|-------------------|----------------------------------------|-------------------|----------------------------------------|------------------|----------------------------------------|
| 265               | 11. Ordering Information               | Correct)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                        |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | <table><thead><tr><th>Part Number</th><th>Package</th></tr></thead><tbody><tr><td>S6J331EKSESE20000</td><td>208-pin plastic TEQFP (LEW208)</td></tr><tr><td>S6J332CKSDSE20000</td><td>208-pin plastic TEQFP (LEW208)</td></tr><tr><td>S6J334CKSESE20000</td><td>208-pin plastic TEQFP (LEW208)</td></tr><tr><td>S6J331EJSESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332EJBDSE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332EJTDSE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332EJBESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332EJTESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332DJEESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334BJDDSE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJBESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJTESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJEESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334DJTESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334DJEESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334CJBESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334CJEESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334BJDESE20000</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJTCSE2000A</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J334EJEDSE2000A</td><td>176-pin plastic TEQFP (LEV176)</td></tr><tr><td>S6J332EHBESE20000</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr><tr><td>S6J334EHEESE20000</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr><tr><td>S6J334DHEESE20000</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr><tr><td>S6J334DHFESE20000</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr><tr><td>S6J334CHEESE20000</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr><tr><td>S6J334CHFSE20000</td><td>144-pin plastic TEQFP (LEX144, LEK144)</td></tr></tbody></table> | Part Number                            | Package | S6J331EKSESE20000 | 208-pin plastic TEQFP (LEW208) | S6J332CKSDSE20000 | 208-pin plastic TEQFP (LEW208) | S6J334CKSESE20000 | 208-pin plastic TEQFP (LEW208) | S6J331EJSESE20000 | 176-pin plastic TEQFP (LEV176) | S6J332EJBDSE20000 | 176-pin plastic TEQFP (LEV176) | S6J332EJTDSE20000 | 176-pin plastic TEQFP (LEV176) | S6J332EJBESE20000 | 176-pin plastic TEQFP (LEV176) | S6J332EJTESE20000 | 176-pin plastic TEQFP (LEV176) | S6J332DJEESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334BJDDSE20000 | 176-pin plastic TEQFP (LEV176) | S6J334EJBESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334EJTESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334EJEESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334DJTESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334DJEESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334CJBESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334CJEESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334BJDESE20000 | 176-pin plastic TEQFP (LEV176) | S6J334EJTCSE2000A | 176-pin plastic TEQFP (LEV176) | S6J334EJEDSE2000A | 176-pin plastic TEQFP (LEV176) | S6J332EHBESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) | S6J334EHEESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) | S6J334DHEESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) | S6J334DHFESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) | S6J334CHEESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) | S6J334CHFSE20000 | 144-pin plastic TEQFP (LEX144, LEK144) |
|                   |                                        | Part Number                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Package                                |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J331EKSESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 208-pin plastic TEQFP (LEW208)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332CKSDSE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 208-pin plastic TEQFP (LEW208)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334CKSESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 208-pin plastic TEQFP (LEW208)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J331EJSESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332EJBDSE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332EJTDSE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332EJBESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332EJTESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332DJEESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334BJDDSE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334EJBESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334EJTESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334EJEESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334DJTESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334DJEESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334CJBESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334CJEESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334BJDESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334EJTCSE2000A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334EJEDSE2000A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 176-pin plastic TEQFP (LEV176)         |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J332EHBESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 144-pin plastic TEQFP (LEX144, LEK144) |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334EHEESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 144-pin plastic TEQFP (LEX144, LEK144) |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334DHEESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 144-pin plastic TEQFP (LEX144, LEK144) |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
|                   |                                        | S6J334DHFESE20000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 144-pin plastic TEQFP (LEX144, LEK144) |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
| S6J334CHEESE20000 | 144-pin plastic TEQFP (LEX144, LEK144) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
| S6J334CHFSE20000  | 144-pin plastic TEQFP (LEX144, LEK144) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |
| Rev. *I           |                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                        |         |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                   |                                        |                  |                                        |

| Page       | Section     | Change Results  |                                                                                             |
|------------|-------------|-----------------|---------------------------------------------------------------------------------------------|
| 11         | 3. Product  | Added the below |                                                                                             |
|            | Description |                 |                                                                                             |
|            | 3.2 Product | Correct)        |                                                                                             |
|            | Description |                 |                                                                                             |
| Table 3-1: |             |                 |                                                                                             |
| Product    |             |                 |                                                                                             |
| Features   |             |                 |                                                                                             |
|            |             | Feature         | Description                                                                                 |
|            |             | A/D Converter   | AN39 to AN63 are not support for S6J33xxxAx, S6J33xxxCx, S6J33xxxEx, and S6J33xxxGx option. |

| 14                                                                                                                                | CHAPTER 3:<br>Product<br>Description<br>3.2.1. Ethernet | <div>Deleted the shading parts as below:</div> <div>Error)</div> <table><tr><th>Functions</th><th>Remark</th></tr><tr><td>Direct Memory Access Interface.<br/>- partial store and forward<br/>- force max amba burst tx/rc<br/>- Priority Queueing (Screening)</td><td></td></tr><tr><td>External FIFO Interface</td><td></td></tr><tr><td>Additional Low Latency TX FIFO Interface for DMA configurations</td><td></td></tr><tr><td>MAC Transmit Block<br/>- half-duplex<br/>- collision<br/>- back_pressure</td><td></td></tr><tr><td>MAC Filtering Block<br/>- external address match<br/>- VLAN tag<br/>- Wakeup On Lan</td><td></td></tr><tr><td>IEEE 1588 and IEEE 802.1AS Support</td><td></td></tr><tr><td>MAC PFC Priority Based Pause Frame Support</td><td></td></tr><tr><td>Energy Efficient Ethernet support</td><td></td></tr><tr><td>LPI Operation in Cadence IP</td><td></td></tr><tr><td>802.1Qav Support – Credit Based Shaping</td><td></td></tr><tr><td>PHY Interface<br/>- GMII<br/>- SGMII<br/>- TBI</td><td></td></tr><tr><td>10/100/1000 Operation<br/>- 10 M<br/>- 1000 M</td><td></td></tr><tr><td>SGMII Operation</td><td></td></tr><tr><td>Jumbo Frames</td><td></td></tr><tr><td>Physical Control Sub-Layer</td><td></td></tr></table> <div>Correct)</div> <table><tr><th>Functions</th><th>Remark</th></tr><tr><td>External FIFO Interface</td><td></td></tr><tr><td>Additional Low Latency TX FIFO Interface for DMA configurations</td><td></td></tr><tr><td>MAC Transmit Block<br/>- half-duplex<br/>- collision<br/>- back_pressure</td><td></td></tr><tr><td>MAC Filtering Block<br/>- external address match<br/>- Wakeup On Lan</td><td></td></tr><tr><td>Energy Efficient Ethernet support</td><td></td></tr><tr><td>LPI Operation in Cadence IP</td><td></td></tr><tr><td>PHY Interface</td><td></td></tr></table> | Functions | Remark | Direct Memory Access Interface.<br>- partial store and forward<br>- force max amba burst tx/rc<br>- Priority Queueing (Screening) |  | External FIFO Interface |  | Additional Low Latency TX FIFO Interface for DMA configurations |  | MAC Transmit Block<br>- half-duplex<br>- collision<br>- back_pressure |  | MAC Filtering Block<br>- external address match<br>- VLAN tag<br>- Wakeup On Lan |  | IEEE 1588 and IEEE 802.1AS Support |  | MAC PFC Priority Based Pause Frame Support |  | Energy Efficient Ethernet support |  | LPI Operation in Cadence IP |  | 802.1Qav Support – Credit Based Shaping |  | PHY Interface<br>- GMII<br>- SGMII<br>- TBI |  | 10/100/1000 Operation<br>- 10 M<br>- 1000 M |  | SGMII Operation |  | Jumbo Frames |  | Physical Control Sub-Layer |  | Functions | Remark | External FIFO Interface |  | Additional Low Latency TX FIFO Interface for DMA configurations |  | MAC Transmit Block<br>- half-duplex<br>- collision<br>- back_pressure |  | MAC Filtering Block<br>- external address match<br>- Wakeup On Lan |  | Energy Efficient Ethernet support |  | LPI Operation in Cadence IP |  | PHY Interface |  |
|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--------|-----------------------------------------------------------------------------------------------------------------------------------|--|-------------------------|--|-----------------------------------------------------------------|--|-----------------------------------------------------------------------|--|----------------------------------------------------------------------------------|--|------------------------------------|--|--------------------------------------------|--|-----------------------------------|--|-----------------------------|--|-----------------------------------------|--|---------------------------------------------|--|---------------------------------------------|--|-----------------|--|--------------|--|----------------------------|--|-----------|--------|-------------------------|--|-----------------------------------------------------------------|--|-----------------------------------------------------------------------|--|--------------------------------------------------------------------|--|-----------------------------------|--|-----------------------------|--|---------------|--|
| Functions                                                                                                                         | Remark                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Direct Memory Access Interface.<br>- partial store and forward<br>- force max amba burst tx/rc<br>- Priority Queueing (Screening) |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| External FIFO Interface                                                                                                           |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Additional Low Latency TX FIFO Interface for DMA configurations                                                                   |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| MAC Transmit Block<br>- half-duplex<br>- collision<br>- back_pressure                                                             |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| MAC Filtering Block<br>- external address match<br>- VLAN tag<br>- Wakeup On Lan                                                  |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| IEEE 1588 and IEEE 802.1AS Support                                                                                                |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| MAC PFC Priority Based Pause Frame Support                                                                                        |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Energy Efficient Ethernet support                                                                                                 |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| LPI Operation in Cadence IP                                                                                                       |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| 802.1Qav Support – Credit Based Shaping                                                                                           |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| PHY Interface<br>- GMII<br>- SGMII<br>- TBI                                                                                       |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| 10/100/1000 Operation<br>- 10 M<br>- 1000 M                                                                                       |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| SGMII Operation                                                                                                                   |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Jumbo Frames                                                                                                                      |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Physical Control Sub-Layer                                                                                                        |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Functions                                                                                                                         | Remark                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| External FIFO Interface                                                                                                           |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Additional Low Latency TX FIFO Interface for DMA configurations                                                                   |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| MAC Transmit Block<br>- half-duplex<br>- collision<br>- back_pressure                                                             |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| MAC Filtering Block<br>- external address match<br>- Wakeup On Lan                                                                |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| Energy Efficient Ethernet support                                                                                                 |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| LPI Operation in Cadence IP                                                                                                       |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |
| PHY Interface                                                                                                                     |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |        |                                                                                                                                   |  |                         |  |                                                                 |  |                                                                       |  |                                                                                  |  |                                    |  |                                            |  |                                   |  |                             |  |                                         |  |                                             |  |                                             |  |                 |  |              |  |                            |  |           |        |                         |  |                                                                 |  |                                                                       |  |                                                                    |  |                                   |  |                             |  |               |  |



| Page | Section                                                                               | Change Results                                                                                                                                                                                      |  |                              |  |                    |              |              |        |
|------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------|--|--------------------|--------------|--------------|--------|
|      |                                                                                       | <div>- GMII</div> <div>- SGMII</div> <div>- TBI</div> <div>10/100/1000 Operation</div> <div>- 1000 M</div> <div>SGMII Operation</div> <div>Jumbo Frames</div> <div>Physical Control Sub-Layer</div> |  |                              |  |                    |              |              |        |
| 46   | 6. Port<br>Description<br>6.1 Port<br>Description List<br>Table 6-1<br>S6J3310 Series | Revised the below                                                                                                                                                                                   |  |                              |  |                    |              |              |        |
|      |                                                                                       | Error)                                                                                                                                                                                              |  |                              |  |                    |              |              |        |
|      |                                                                                       | Port Name                                                                                                                                                                                           |  | Description                  |  | Package Pin Number |              |              | Remark |
|      |                                                                                       |                                                                                                                                                                                                     |  |                              |  | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
|      |                                                                                       | PPG0_TOUT0_1                                                                                                                                                                                        |  | Base timer 1 output pin (1)  |  | 8                  | 8            | 11           |        |
|      |                                                                                       | Correct)                                                                                                                                                                                            |  |                              |  |                    |              |              |        |
|      |                                                                                       | Port Name                                                                                                                                                                                           |  | Description                  |  | Package Pin Number |              |              | Remark |
|      |                                                                                       |                                                                                                                                                                                                     |  |                              |  | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
|      |                                                                                       | PPG0_TOUT0_1                                                                                                                                                                                        |  | Base timer 0 output pin (1)  |  | 8                  | 8            | 11           |        |
| 47   | 6. Port<br>Description<br>6.1 Port<br>Description List<br>Table 6-1<br>S6J3310 Series | Revised the below                                                                                                                                                                                   |  |                              |  |                    |              |              |        |
|      |                                                                                       | Error)                                                                                                                                                                                              |  |                              |  |                    |              |              |        |
|      |                                                                                       | Port Name                                                                                                                                                                                           |  | Description                  |  | Package Pin Number |              |              | Remark |
|      |                                                                                       |                                                                                                                                                                                                     |  |                              |  | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
|      |                                                                                       | PPG5_TOUT0_1                                                                                                                                                                                        |  | Base timer 11 output pin (1) |  | -                  | 21           | 27           |        |
|      |                                                                                       | Correct)                                                                                                                                                                                            |  |                              |  |                    |              |              |        |
|      |                                                                                       | Port Name                                                                                                                                                                                           |  | Description                  |  | Package Pin Number |              |              | Remark |
|      |                                                                                       |                                                                                                                                                                                                     |  |                              |  | TEQFP<br>144       | TEQFP<br>176 | TEQFP<br>208 |        |
|      |                                                                                       | PPG5_TOUT0_1                                                                                                                                                                                        |  | Base timer 10 output pin (1) |  | -                  | 21           | 27           |        |

| Page          | Section                                                                               | Change Results    |                                                                                       |                            |              |              |        |
|---------------|---------------------------------------------------------------------------------------|-------------------|---------------------------------------------------------------------------------------|----------------------------|--------------|--------------|--------|
| 47            | 6. Port<br>Description<br>6.1 Port<br>Description List<br>Table 6-1<br>S6J3310 Series | Revised the below |                                                                                       |                            |              |              |        |
|               |                                                                                       | Error)            |                                                                                       |                            |              |              |        |
|               |                                                                                       | Port Name         | Description                                                                           | Package Pin Number         |              |              | Remark |
|               |                                                                                       |                   |                                                                                       | TEQFP<br>144               | TEQFP<br>176 | TEQFP<br>208 |        |
|               |                                                                                       | PPG10_TOUT0_1     | Base timer 21 output pin (1)                                                          | -                          | 98           | 114          |        |
|               |                                                                                       | Correct)          |                                                                                       |                            |              |              |        |
|               |                                                                                       | Port Name         | Description                                                                           | Package Pin Number         |              |              | Remark |
|               |                                                                                       |                   |                                                                                       | TEQFP<br>144               | TEQFP<br>176 | TEQFP<br>208 |        |
|               |                                                                                       | PPG10_TOUT0_1     | Base timer 20 output pin (1)                                                          | -                          | 98           | 114          |        |
|               |                                                                                       | 47                | 6. Port<br>Description<br>6.1 Port<br>Description List<br>Table 6-1<br>S6J3310 Series | Revised the below          |              |              |        |
| Error)        |                                                                                       |                   |                                                                                       |                            |              |              |        |
| Port Name     | Description                                                                           |                   |                                                                                       | Package Pin Number         |              |              | Remark |
|               |                                                                                       |                   |                                                                                       | TEQFP<br>144               | TEQFP<br>176 | TEQFP<br>208 |        |
| PPG15_TOUT0_1 | Base timer 31 output pin (1)                                                          |                   |                                                                                       | -                          | 163          | 195          |        |
| Correct)      |                                                                                       |                   |                                                                                       |                            |              |              |        |
| Port Name     | Description                                                                           |                   |                                                                                       | Package Pin Number         |              |              | Remark |
|               |                                                                                       |                   |                                                                                       | TEQFP<br>144               | TEQFP<br>176 | TEQFP<br>208 |        |
| PPG15_TOUT0_1 | Base timer 30 output pin (1)                                                          |                   |                                                                                       | -                          | 163          | 195          |        |
| 263 to<br>264 | 12. Errata                                                                            |                   |                                                                                       | Added section "12. Errata" |              |              |        |

## Document History

**Document Title:** S6J3310 Series/S6J3320 Series/S6J3330 Series/S6J3340 Series, 32-bit Microcontroller Traveo™ Family  
**Document Number:** 002-10635

| Revision | ECN     | Orig. of Change | Submission Date | Description of Change                                                                                                                                                                                                                                                                                                                                                                               |
|----------|---------|-----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| **       | 5063970 | TMOR            | 01/25/2016      | New Spec.                                                                                                                                                                                                                                                                                                                                                                                           |
| *A       | 5203759 | TMOR            | 04/06/2016      | Correct device revision, Chip ID, LVD spec, DDR-HSSPI spec, Hyper BUS spec, and MediaLB spec<br>For detail, see "Major Changes".                                                                                                                                                                                                                                                                    |
| *B       | 5371697 | TMOR            | 07/25/2016      | Additional Handling Devices comments(Method to Switch off VCC12 during Power-off Sequence), LCD BUS I/F AC spec, Internal operation clock frequency comments, LVD comments, and ADC Units vs channel comments<br>The package dimension of TEQFP144 (0.4mm Pitch) correct from the provisional version to the formal version.<br>TYPO: I <sup>2</sup> C Fast Mode<br>For detail, see "Major Changes" |
| *C       | 5622186 | MATO            | 02/07/2017      | - ID add<br>-I <sub>CC1</sub> , I <sub>CC2</sub> spec add<br>-LCD bus I/F spec revise<br>-Power and RSTX sequence add<br>-Ordering Information revise<br>For detail, see "Major Changes"                                                                                                                                                                                                            |
| *D       | 5691761 | HARA            | 04/27/2017      | Updated logo and copyright.                                                                                                                                                                                                                                                                                                                                                                         |
| *E       | 5782663 | MATO            | 06/26/2017      | -Special spec of total maximum clamp current add<br>-I <sub>CC12</sub> , I <sub>CC12</sub> spec change<br>-Power sequence add<br>-Flash write/erase spec change<br>For detail, see "Major Changes"                                                                                                                                                                                                  |
| *F       | 5947678 | MATO            | 10/27/2017      | -Revision change<br>-Power supply current for S6J33xxxEx add<br>-Ordering Information change<br>For detail, see "Major Changes"                                                                                                                                                                                                                                                                     |
| *G       | 5969954 | MATO            | 11/20/2017      | -Function list and Product Description change<br>For detail, see "Major Changes"                                                                                                                                                                                                                                                                                                                    |
| *H       | 6136290 | GSHI            | 04/17/2018      | -Document Definition change<br>-Hysteresis voltage add in DC Characteristics<br>-PLLx/SSCGx minimum clock frequencies add in Internal Clock Timing<br>-Ordering Information change                                                                                                                                                                                                                  |

| Revision | ECN     | Orig. of Change | Submission Date | Description of Change                                                                                                                                                                                                                                                                   |
|----------|---------|-----------------|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |         |                 |                 | For detail, see "Major Changes"                                                                                                                                                                                                                                                         |
| *I       | 6300353 | GSHI            | 09/05/2018      | <ul style="list-style-type: none"> <li>- Add an option limitation for Description of A/D Converter of Product Description.</li> <li>- Update Ethernet Support Functions.</li> <li>- Update Base timer allocation</li> <li>- Added 12. Errata</li> </ul> For detail, see "Major Changes" |

## Sales, Solutions, and Legal Information

### Worldwide Sales and Design Support

Cypress maintains a worldwide network of offices, solution centers, manufacturer's representatives, and distributors. To find the office closest to you, visit us at [Cypress Locations](#).

### Products

|                               |                                        |
|-------------------------------|----------------------------------------|
| Arm® Cortex® Microcontrollers | <a href="#">cypress.com/arm</a>        |
| Automotive                    | <a href="#">cypress.com/automotive</a> |
| Clocks & Buffers              | <a href="#">cypress.com/clocks</a>     |
| Interface                     | <a href="#">cypress.com/interface</a>  |
| Internet of Things            | <a href="#">cypress.com/iot</a>        |
| Memory                        | <a href="#">cypress.com/memory</a>     |
| Microcontrollers              | <a href="#">cypress.com/mcu</a>        |
| PSoC                          | <a href="#">cypress.com/psoc</a>       |
| Power Management ICs          | <a href="#">cypress.com/pmic</a>       |
| Touch Sensing                 | <a href="#">cypress.com/touch</a>      |
| USB Controllers               | <a href="#">cypress.com/usb</a>        |
| Wireless Connectivity         | <a href="#">cypress.com/wireless</a>   |

### PSoC® Solutions

[PSoC 1](#) | [PSoC 3](#) | [PSoC 4](#) | [PSoC 5LP](#) | [PSoC 6 MCU](#)

### Cypress Developer Community

[Community](#) | [Projects](#) | [Video](#) | [Blogs](#) | [Training](#) | [Components](#)

### Technical Support

[cypress.com/support](#)

Arm and Cortex are registered trademarks of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

© Cypress Semiconductor Corporation, 2016-2018. This document is the property of Cypress Semiconductor Corporation and its subsidiaries, including Spansion LLC ("Cypress"). This document, including any software or firmware included or referenced in this document ("Software"), is owned by Cypress under the intellectual property laws and treaties of the United States and other countries worldwide. Cypress reserves all rights under such laws and treaties and does not, except as specifically stated in this paragraph, grant any license under its patents, copyrights, trademarks, or other intellectual property rights. If the Software is not accompanied by a license agreement and you do not otherwise have a written agreement with Cypress governing the use of the Software, then Cypress hereby grants you a personal, non-exclusive, nontransferable license (without the right to sublicense) (1) under its copyright rights in the Software (a) for Software provided in source code form, to modify and reproduce the Software solely for use with Cypress hardware products, only internally within your organization, and (b) to distribute the Software in binary code form externally to end users (either directly or indirectly through resellers and distributors), solely for use on Cypress hardware product units, and (2) under those claims of Cypress's patents that are infringed by the Software (as provided by Cypress, unmodified) to make, use, distribute, and import the Software solely for use with Cypress hardware products. Any other use, reproduction, modification, translation, or compilation of the Software is prohibited.

TO THE EXTENT PERMITTED BY APPLICABLE LAW, CYPRESS MAKES NO WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, WITH REGARD TO THIS DOCUMENT OR ANY SOFTWARE OR ACCOMPANYING HARDWARE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. No computing device can be absolutely secure. Therefore, despite security measures implemented in Cypress hardware or software products, Cypress does not assume any liability arising out of any security breach, such as unauthorized access to or use of a Cypress product. In addition, the products described in these materials may contain design defects or errors known as errata which may cause the product to deviate from published specifications. To the extent permitted by applicable law, Cypress reserves the right to make changes to this document without further notice. Cypress does not assume any liability arising out of the application or use of any product or circuit described in this document. Any information provided in this document, including any sample design information or programming code, is provided only for reference purposes. It is the responsibility of the user of this document to properly design, program, and test the functionality and safety of any application made of this information and any resulting product. Cypress products are not designed, intended, or authorized for use as critical components in systems designed or intended for the operation of weapons, weapons systems, nuclear installations, life-support devices or systems, other medical devices or systems (including resuscitation equipment and surgical implants), pollution control or hazardous substances management, or other uses where the failure of the device or system could cause personal injury, death, or property damage ("Unintended Uses"). A critical component is any component of a device or system whose failure to perform can be reasonably expected to cause the failure of the device or system, or to affect its safety or effectiveness. Cypress is not liable, in whole or in part, and you shall and hereby do release Cypress from any claim, damage, or other liability arising from or related to all Unintended Uses of Cypress products. You shall indemnify and hold Cypress harmless from and against all claims, costs, damages, and other liabilities, including claims for personal injury or death, arising from or related to any Unintended Uses of Cypress products.

Cypress, the Cypress logo, Spansion, the Spansion logo, and combinations thereof, WICED, PSoC, CapSense, EZ-USB, F-RAM, and Traveo are trademarks or registered trademarks of Cypress in the United States and other countries. For a more complete list of Cypress trademarks, visit [cypress.com](#). Other names and brands may be claimed as property of their respective owners.

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



Тел: +7 (812) 336 43 04 (многоканальный)

Email: [org@lifeelectronics.ru](mailto:org@lifeelectronics.ru)

[www.lifeelectronics.ru](http://www.lifeelectronics.ru)